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# COMPUTER PROGRAM FOR VIBRATION PREDICTION OF FIGHTER AIRCRAFT EQUIPMENTS

COMBINED ENVIRONMENTS TEST GROUP ENVIRONMENTAL CONTROL BRANCH VEHICLE EQUIPMENT DIVISION

**NOVEMBER 1977** 

TECHNICAL REPORT AFFDL-TR-77-101 Final Report for Period 21 March 1976 to 15 April 1977

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	REPORT DOCUMENTATION	PAGE	READ INSTRUCTIONS BEFORE COMPLETING FORM
1.	REPORT NUMBER	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
	AFFDL-TR-77-101		
4.	TITLE (and Subtitle)		5. TYPE OF REPORT & PERIOD COVERED
	Computer Program for Vibration Pr	ediction of	Final Report for Period
	Fighter Aircraft Equipments		21 March 76 to 15 April 77
			6. PERFORMING ORG. REPORT NUMBER
7.	AUTHOR(s)		8. CONTRACT OR GRANT NUMBER(s)
	Robert W. Sevy	201	
	Mark N. Haller		
	PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK
			10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
	Air Force Flight Dynamics Laborat		
	Wright-Patterson Air Force Base,	01110 45455	
11.	CONTROLLING OFFICE NAME AND ADDRESS		12. REPORT DATE
	Air Force Flight Dynamics Laborat	cory	November 1977
	Wright-Patterson Air Force Base,	Ohio 45433	221
14.	MONITORING AGENCY NAME & ADDRESS(if differen	nt from Controlling Office)	15. SECURITY CLASS. (of this report)
			Unclassified
			15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
16.	DISTRIBUTION STATEMENT (of this Report)		
	Approved for public release; dist	tribution unlimit	ed.
	A. Carlotte and A. Carlotte an		
17.	DISTRIBUTION STATEMENT (of the abstract entered	in Block 20, if different fro	m Report)
18.	SUPPLEMENTARY NOTES		
	JOHN ELMERT WATER		
10	KEY WORDS (Continue on reverse side if necessary a	nd identify by block number	
19.			
	Computer Program Equipments Vibration Transfer Fu	nction	
	Prediction		
	Aircraft		
22		ad identify by block number	
20.	ABSTRACT (Continue on reverse side if necessary and		nate in a computer program
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This study details in-house efforts that culminate in a computer program for the prediction of vibration inputs to equipments mounted in fighter aircraft.

The computer format is orchestrated about a basic function whose thematic variations are invoked to describe boundary layer excitations and to synthesize a sequence of transfer functions whose operations, in turn, define

the resultant vibration spectrum; beginning at the aircraft surface and proceeding inward to the designated equipment. Program inputs specify flight conditions, aircraft structural classes, equipment weight, equipment locational coordinates, and mounting categories in order to characterize vibration inputs of fighter aircraft equipments during flight attitudes ranging from straight and level states to a variety of significant flight maneuvers and phases. Program outputs, digital and graphical, are designed to provide the direct spectral information necessary to assemble sequential vibration histories corresponding to fighter aircraft mission profiles.

#### FOREWORD

This joint report was prepared by the Vehicle Equipment Division, Air Force Flight Dynamics Laboratory (FEE) and by the ASD Computer Center (ADDS), Wright-Patterson Air Force Base, Ohio. The report contains the results of an in-house research program to develop a computer program for the utilization of a vibration prediction technique applied to equipments mounted in fighter aircraft.

This work was conducted from 21 March 1976 to 15 April 1977 under Task 61460412 with Robert W. Sevy as project engineer and under Problem Number D760078 with Mark N. Haller as mathematician.

# TABLE OF CONTENTS

Section	<u>Title</u>	Page
I	Introduction	1
	1.0 Approach	1
	1.1 Fuselage Vibration Behavior	2 3 3
II	Flex Function	3
	1.0 Derivation	3
	1.1 Further Adjustments	5
	2.0 Flex Function Display	7
	2.1 Low and High Frequency Boost	10
	2.2 Boundary Layer Spectra	13
	3.0 Prediction Equations	13
	3.1 Special Functions	15
	3.2 Equipment Mounting Categories	17
III	Programming	19
	1.0 Program	20
	2.0 Program Preparation	20
	2.1 Execution	20
	2.2 Functions Available for Plotting	21
	3.0 Program Deck Setup and Card Preparation	23
	3.1 Job Deck Setup	23
	3.1.1 Input Data Deck Setup	25
	3.1.1.1 Summary of Input Data Card	
	Structure	25
	3.1.2 Card Preparation for Input Data	28
	3.1.2.1 DESCRIPTION Card	28
	3.1.2.2 ALTITUDE-MACH NUMBER Card	29
	3.1.2.3 AIRCRAFT PARAMETERS Card	30
	3.1.2.4 PROFILE PARAMETERS and	2.0
	SPECIAL VALUES Card	32
	3.1.2.5 FIRST BENDING MODE VALUES	2.2
	Card	33
	3.1.2.6 SECOND BENDING MODE VALUES	2/
	Card	34
	3.1.2.7 FINISH Card	35
	3.1.3 Deck Setup Card Forms ("Source"	35
	and "Binary")	35
	3.1.3.1 Source Card Form	36
	3.1.3.2 Binary Card Form	30
	3.1.4 Plot Programs ("On-Line" and	37
	"Off-Line")	37
	3.1.4.1 On-Line 3.1.4.2 Off-Line	38
	3.1.4.2 OII-Line 3.1.4.3 Keyboard Visual Display	39
	J.I.4.J REVUOLIG VISUAL DISPLAY	33

# TABLE OF CONTENTS (CONTINUED)

Section		<u>Title</u>	Page
IV	App1 1.0	ications Examples 1.1 F-4 (Skin) 1.2 F-16 (F.C.C.) 1.3 F-4 (Instrument Panel, Non-isolated) 1.4 A-7D (Instrument Panel, Isolated) 1.5 F-15 (Black Box Input, Shock Mounted) 1.6 F-15 (Black Box Response, Shock Mounted)	40 40 40 42 42 51 54 58
V	Revi 1.0	Discussion 1.1 Instrument Panels 1.2 Skin 1.3 Buffet Turn 1.4 Forward Looking Radar Zone 1.5 Sinusoidals 1.6 Determining R 1.7 Future Work Areas	64 64 65 66 67 67 68 68
Appendi	ix A:	Aerodynamic Properties	71
Append i	ix B:	Aircraft Mode Shapes (Fuselage)	76
Appendi	ix C:	Transfer Functions Low, Medium, and High Frequency	93
Appendi	lx D:	Special Functions	104
Appendi	ix E:	Equipment Mounting Categories	113
Appendi	x F:	Computer Program	129
Referen	ices		205
Bibliog	graphy		206

# AFFDL-TR-77-101

#### LIST OF ILLUSTRATIONS

Figure	<u>Title</u>	Page
1	Derivation of the Flex Function and Associated Integral	4
2	Typical Flex Function for Low Frequency Rolloff	8
3	Typical Flex Function for High Frequency Rolloff	9
4	Flex Function with Low Frequency Boost	11
5	Flex Function with High Frequency Boost	12
6	Flex Function Applied to the Aircraft Boundary Layer	14
7	Input Data Cards, RF-4C Skin	41
8	Location of Skin Response, RF-4C	43
9	Predicted Response of Skin, RF-4C	44
10	Input Data Cards, FCC, F-16	45
11	Location of Vibration Input to FCC, F-16	46
12	Predicted Vibration Input to FCC, F-16	47
13	Input Data Cards, RAI, RF-4C	48
14	Location of RAI, Aft Instrument Panel, RF-4C	49
15	Predicted Vibration Input to RAI, Instrument Panel, Non-Isolated, RF-4C	50
16	Input Data Cards, RFI, A-7D	52
17	Location of RFI, Instrument Panel, Isolated, A-7D	53
18	Predicted Vibration Input to RFI, Instrument Panel, Isolated, A-7D	55
19	Input Data Cards, APX-76, F-15	56
20	Location of APX-76, Isolated, F-15	57
21	Predicted Input to APX-76, Isolated, F-15, for SANDL Flight	59

# LIST OF ILLUSTRATIONS (CONTINUED)

Figure	<u>Title</u>	Page
22	Predicted Input to APX-76, Isolated, F-15, for Buffet Turn	60
23	Input Data Cards, APX-76 Response, F-15	61
24	Predicted Response of APX-76, F-15, for SANDL Flight	62
25	Predicted Response of APX-76, F-15 for Buffet Turn	63
	Appendix A	
A-1	The Slope Factor, $\beta'$ , as a Function of $f_{\alpha'}$	73
A-2	Conversion Chart (dB as a Function of P(f))	74
A-3	Example of P(f) as a Function of Frequency	75
	Appendix B	
B-1	Mode Shape (FBBVS) of the F-16	79
B-2	Mode Shape (SBBVS) of the F-16	80
B-3	F-16 Aircraft Showing the x and L Parameters	81
B-4	Mode Shape (FBBVS) of the F-15	82
B-5	Mode Shape (SBBVS) of the F-15	83
B-6	F-15 Aircraft Showing the x and L Parameters	84
B-7	Mode Shape (FBBVS) of the F-111	85
B-8	F-111 Aircraft Showing the x and L Parameters	86
B-9	Mode Shape (FBBVS) of the RF-4C	87
B-10	Mode Shape (SBBVS) of the RF-4C	88
B-11	RF-4C Aircraft Showing the x and L Parameters	89

# LIST OF ILLUSTRATIONS (CONTINUED)

Figure	<u>Title</u>	Page
B-12	Mode Shape (FBBVS) of the A-7D	90
B-13	Mode Shape (SBBVS) of the A-7D	91
B-14	A-7D Aircraft Showing the $x$ and $L$ Parameters	92
	Appendix C	
C-1	Low Frequency Transfer Function, $L(f)$ , for Fighter Aircraft Fuselage	95
C-2a	Medium Frequency Transfer Function, $M(f)$ , for Fighter Aircraft	97
C-2b	Attenuation of $M_{m}(f)$ as a Function of $R_{s}$	98
C-3a	$\begin{array}{ll} \mbox{High Frequency Transfer Function, $H(f)$, for Fighter} \\ \mbox{Aircraft} \end{array}$	99
C-3b	Frequency and Amplitude Attenuation of $\mathbf{H}_{\mathbf{m}}(\mathbf{f})$ as a Function of $\mathbf{R}_{\mathbf{S}}$	100
C-3c	Attenuation of $\mathbf{H}_{\mathbf{m}}(\mathbf{f})$ as a Function of Equipment Weight	101
C-3d	Surface Weight Density for Aircraft Materials and Their Thicknesses	102
C-3e	Attenuation of $\mathbf{H}_{\mathbf{m}}(\mathbf{f})$ as a Function Surface Weight Density	103
	Appendix D	
D-1	Location on Aircraft of $x_{BT}$ , $x_{T}$ , $x_{L}$	106
D-2	Special Function, $S_{BT}(f)$ , for Buffet Turn	108
D-3	Location on Aircraft of D Parameter	109
D-4	Special Function, $S_{\overline{\mathbf{T}}}(f)$ , for Takeoff	110
D-5	Special Function, $S_{\tau}(f)$ , for Landing	111

Figure

E-I

# LIST OF ILLUSTRATIONS (CONTINUED)

Title

Page

115

D-6	Special Function, $S_{\overline{TB}}(f)$ , for Low Frequency Atmospheric Turbulence	112
	Appendix E	
E-1a	Transfer Function for Category I(a)	118
E-1b	Transfer Function for Category I(b)	119
E-2a	Transfer Function for Category II(a)	120
E-2b	Transfer Function for Category II(b)	121
E-3a	Transfer Function for Category III(a)	122
E-3b	Transfer Function for Category III(b)	123
E-4	Transfer Function for Category V	124
E-5	Midspan Location of R(f)	125
E-6	Midspan Locations of R(f) for Instrument Panels	126
E-7	Transfer Function for Category VI	127
	LIST OF TABLES	
Table	<u>Title</u>	Page
I	Card Usage Guidance Bending Mode Data	27
II	Recommended Center Frequencies of $Y(f)$ when $f$ is Either Unknown or Unspecified	31
C-I	Parametric Values for First and Second Bending Modes	96
D-I	Downstream Distance (x) for Special Functions $S_{BT}(f)$ , $S_{T}(f)$ , $S_{L}(f)$	105

Transfer Function Categories for Equipments Mounted

in Fighter Aircraft

#### SYMBOLS

θ	angle (rads)
β	slope factor, low frequency rolloff
β-	slope factor, high frequency rolloff
α	form factor for low frequency rolloff segment of flex function
α'	form factor for high frequency rolloff segment of flex function
ωο	locator frequency, low frequency rolloff (rads/sec)
ω,	locator frequency, high frequency rolloff (rads/sec)
fo	locator frequency, low frequency rolloff (Hz)
f <sub>o</sub> ,	locator frequency, high frequency rolloff (Hz)
fx	frequency value at x (given $f_0$ ) (Hz)
f <sub>x</sub> ,	frequency value at x' (given f <sub>o</sub> ') (Hz)
fn	first fuselage bending mode, vertical, symmetric (Hz)
$f_{2n}$	second fuselage bending mode, vertical, symmetric (Hz)
fc	center, or resonance frequency of Y(f)
a	acceleration, rms (ft/sec <sup>2</sup> )
x	normalizing frequency ratio, low frequency rolloff; also aerodynamic distance downstream from A/C nose (ft)
$\mathbf{x}_{\mathrm{E}}$	aerodynamic distance downstream - from A/C nose to equipment location (ft) $$
$x_{BT}$	value of $x$ to A/C mid chord at wing - fuselage junction (ft)
$x_L, x_T$	value of x to main landing gear strut (ft)
x´	normalizing frequency ratio, high frequency rolloff
I	integral of the flex function

#### SYMBOLS (CONTINUED)

80	boundary layer thickness, zero altitude (ft)
$\delta_{\mathbf{b}}$	boundary layer thickness at altitude (ft)
Н	altitude (ft)
С	speed of sound (ft/sec)
q	dynamic pressure (PSF)
U	free stream velocity (ft/sec)
M	mach number
Po	density of air at zero altitude (slug/ft <sup>3</sup> )
ρ	density of air at altitude (slug/ft <sup>3</sup> )
P(f)	pressure spectral density (dynes/cm <sup>2</sup> ) <sup>2</sup> /Hz
$\emptyset_n(x)$	normalized mode shape (fuselage)
L(f)	low frequency transfer function of primary structure
$L_{m}(f)$	maximum value of L(f)
M(f)	medium frequency transfer function of primary structure
$_{m}^{M}(f)$	maximum value of M(f)
H(f)	high frequency transfer function of primary structure (aircraft skin)
G(f)	primary structure response, (g <sup>2</sup> /Hz)
Y(f)	transfer function of equipments mounted on secondary structure
Y <sub>m</sub> (f)	maximum value of Y(f)
Y <sub>I(a)</sub>	Y(f) for equipment mounting category, I(a)
R(f)	response of secondary structure (g <sup>2</sup> /Hz)
ε	load offset distance from maximum response location on secondary structure (in)

#### SYMBOLS (CONTINUED)

```
adjusted value of R(f) due to \varepsilon (g<sup>2</sup>/Hz)
R (f)
S_{RT}(f)
         special function for the buffet turn flight phase
         pressure spectral density spectrum of a fighter air-
P_{RT}(f)
         craft during buffet turn (PSF2/Hz)
S_{T}(f)
         special function for the takeoff phase
P_{T}(f)
         equivalent pressure spectral density spectrum of an
         aircraft during the takeoff phase (PSF2/Hz)
S_{T}(f)
         special function of an aircraft during the landing phase
P_{t}(f)
         equivalent pressure spectral density spectrum of an aircraft
         during the landing phase (PSF2/Hz)
R
         distance in from the skin (inches)
         equipment weight (1bs)
W_{E}
         surface density of skin (lbs/ft<sup>2</sup>)
Ws
         maximum value of P(f) (dynes/cm<sup>2</sup>)<sup>2</sup>/Hz
P_{m}(f)
H_(f)
         maximum value of H(f)
         maximum value of P(f) during buffet turn (dynes/cm<sup>2</sup>)<sup>2</sup>/Hz
PmRT
Rex
         U \times /v = Reynolds number at distance x
         kinematic viscosity at altitude (ft<sup>2</sup>/sec)
         modal mass (slugs)
m
         Young's modulus (1bs/in2)
E
         plate moment of inertia (bt3/12)
I
         plate thickness (inches)
t
         length of aircraft fuselage (inches)
L
         length of first bending mode, secondary structure (inches)
λ
fc
         center frequency of transfer functions for equipment cate-
         gories and of special functions
```

# SYMBOLS (CONTINUED)

- $D_f$  nominal fuselage diameter at  $x = x_E$  (inches)
- $L_{\mbox{\scriptsize M}}(\mbox{\scriptsize f})$  maximum value of low frequency transfer function, first bending mode (dB)
- $\rm L_2(f)_{M}^{}$  maximum value of low frequency transfer function, second bending mode (dB)

#### SECTION I

#### INTRODUCTION

From the equipment design and the functional test and analysis viewpoint, it is important that the predicted vibration spectra of fighter aircraft equipments emulate the real vibration histories as closely as the forecasting technology will allow. To do this, it is necessary to be able to portray the variform vibration spectra as the aircraft cycles through a variety of flight conditions, attitudes, and phases that, when seen in terms of their sequential assembly, constitutes a vibrational representation of the mission flight profile. Spectral fidelity is important not only from the viewpoint of the reversible \*, functional failure -- a failure that underlines the interrelationship between the vibration spectral details and the concomittant equipment malfunction -- its importance is stressed again when vibration test inputs are chosen for the long-time test spectra associated with various reliability test philosophies. Here, premature fatigue failure often results because the vibration test spectrum exceeds the in situ spectrum; or more explicitly, fails to adequately mirror the real vibration environment relative to the spectral details, and to the real time of exposure.

#### 1.0 Approach

The detailed development of the vibration prediction method utilized in this program is found in Reference 1. However, for review purposes, it is useful to briefly survey major elements of the technique.

<sup>\*</sup> change the spectrum and the equipment resumes operation

#### 1.1 Fuselage Vibration Behavior

The aircraft fuselage response is subdivided into three regimes: the low frequency region, dominated by the fuselage body bending modes; the medium frequency region, determined by the response of the internal structure; and the high frequency domain, which is established by the aircraft skin contributions. Three transfer functions L(f), M(f), and H(f) are assigned to these regions: low, medium, and high, respectively.

The boundary layer pressure spectral density P(f) is transferred through L(f), M(f), and H(f) to produce a structural response spectrum, G(f), which, in turn, is attenuated and further transformed by other functions as one progresses into the aircraft interior. P(f) and the three transfer functions are variants of the same basic function, the derivation of which is developed fully in Section II. Other special variants of this same function are employed to account for a variety of equipment mounting methods. A further variation is invoked to simulate a number of aircraft phases and maneuvers -all are discussed in Section III and all are detailed in their applicable Appendices. Section III describes the computer program and its operating procedures, taken from the viewpoint of the user. Section IV demonstrates the applications of the prediction method and the program as it is applied to a number of aircraft equipment mounting methods and flight conditions. Appendix F contains the complete computer program in FORTRAN IV.

#### SECTION II

#### FLEX FUNCTION

#### 1.0 Derivation

A rather detailed discussion of the flex function and its derivation is found in reference 1. But since we intend to expand on the earlier work and, moreover, since the function operates as the central mechanism of the computer program, a review of the main elements is essential.

Consider the following function and its mirror image:

$$\theta = \arctan A$$
 (1)

$$\theta = \pi - \arctan A \tag{2}$$

where: 
$$\theta = \text{angle (rads)}$$

$$A = 2\beta(\omega/\omega_0)/1 - (\omega/\omega_0)^2$$

$$\omega = \text{angular frequency (rads/Hz)}$$

$$\omega_0, \omega_0' = \text{locator frequency (rads/Hz)}$$

$$\beta, \beta' = \text{slope factor}$$

Equations (1) and (2) combine graphically to form a bandpass characteristic (Figure 1a). Equation (1) describes the low frequency roll-off; equation (2) the high frequency roll-off. Note that in this form, frequency translation occurs by control of  $\omega_{0}(\omega_{0})$ . Slope control is readily obtained by adjustment of  $\beta(\beta)$ . These flexible

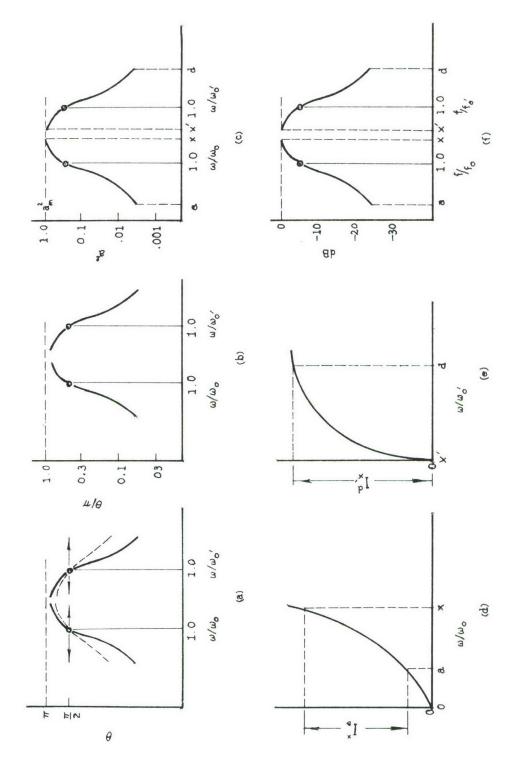


Figure 1. Derivation of the Flex Function and Associated Integral

and useful properties, by which response functions may be described using only four notations, will become more obvious a little later on.

#### 1.1 Further Adjustments

However, there remains an objection to the curve in this form owing to the asymptotic properties of the function. That is,  $\omega/\omega_0$  must approach infinity in order that  $\theta \to \pi$ . Since  $\pi$  represents the curve maxima, and it is the maxima that we intend to reference when utilizing the functions, we must readjust the curves vertically to obtain a value of  $\theta = \pi$  at a real, finite value of  $\omega/\omega_0$ . This we do as follows:

$$\theta/\theta_{x} = (\arctan A)/\theta_{x}$$
 (3)

$$\theta/\theta_{x} = (\pi - \arctan A)/\theta_{x}$$
 (4)

where: 
$$\theta_{x} = \arctan \left[ 2\beta x/1 - (x)^{2} \right]$$
  
and:  $\theta_{x}' = \pi -\arctan \left[ 2\beta' x'/1 - (x')^{2} \right]$ 

The curves are now shown as Figure 1(b) and appear in normalized form, that is, the maximum value is unity at  $\theta = \theta_X$  and  $\theta = \theta_X$ .

We may let the functions represent a pertinent variable, say acceleration (a), by the following substitutions.

Let: 
$$\theta/\theta_{x} = K a$$
  
and:  $a = 1/K(\arctan A)/\theta_{x}$  (5)

where:  $(\arctan A)/\theta_x = g(\omega/\omega_0)$ 

when: 
$$\omega = x\omega_0$$
, then  $g(x) = 1.0$   
and  $a = a_{max}$ 

From inspection of (5),  $1/K = a_{max}$ . If we substitute this into (5), we have a generalized form for the independent variable, a:

$$a = a_{\text{max}} [(\arctan A)/\theta_{x}]$$

$$o \le \omega/\omega_{o} \le x$$
(6)

Operating similarly for the high frequency roll-off portion of the flex function we have:

$$a = a_{\text{max}} [(\pi - \arctan A)/\theta_{x'}]$$

$$x' \leq \omega/\omega_{x'}$$
(7)

A good deal of the time we will be concerned with mean squared values of the acceleration and the acceleration power spectral densities. Thus, (6) and (7) may be squared as follows:

$$a^2 = a_{\text{max}}^2 \left[ (\arctan A)/\theta_x \right]^2 \tag{8}$$

$$a^{2} = a^{2}_{\text{max}} \left[ (\pi - \arctan A) / \theta_{x} \right]^{2}$$
 (9)

The squared curves are shown in Figure 1(c). When using power spectral densities, we will also be concerned with overall mean squared acceleration, thus the integrals of (8) and (9) appear as follows:

$$I_a^x = a_{\text{max}}^2 \int_a^x \left[ (\arctan A)/\theta_x \right]^2 d(\omega/\omega_0)$$
 (10)

$$I_a^{x'} = a_{\text{max}}^2 \int_c^{x'} \left[ (\pi - \arctan A) / \theta_{x'} \right]^2 d(\omega/\omega_0)$$
 (11)

Figures 1(d) and (e) show the integrals of the low and high frequency curves, respectively. And since most of the time we will use the log of the independent variable  $a^2$  (referred to  $a^2_{max}$ ) we present (8) and (9) as follows:

$$dB = 10\log_{10}[(\arctan A)/\theta_x]^2$$
 (12)

$$dB = 10\log_{10}[(\pi - \arctan A)/\theta_{x}]^2$$
(13)

Also, since we will be using hertz for the frequency variable, we substitute f in lieu of  $\omega$  and 180° for  $\pi$ . The final set of curves are shown in Figure 1(f).

#### 2.0 Flex Function Display

Values of x and x' were chosen for the low and high frequency functions as were values of  $\beta$  and  $\beta$ . Since x and x' represent the frequency ratios of the low and high frequency function at which normalization of the ordinate value occurs, they are identified, in truncated computerese, as NORM. FREQ. Both parametrics were selected to cover the range of vibration spectra that one associates with the primary structure of aircraft viewed over a wide range of structural locations and flight conditions. Figures 2 and 3 show a typical low and high frequency curve for x = NORM. FREQ. = 2.00 and x' = NORM. FREQ. = 0.500, respectively. The  $\beta(\beta')$  parameters are shown also on the figures as curve families having  $\beta$  and  $\beta'$  in the following graduations: 0.1, 0.2, 0.4, 0.6, 0.8 and 1.0.

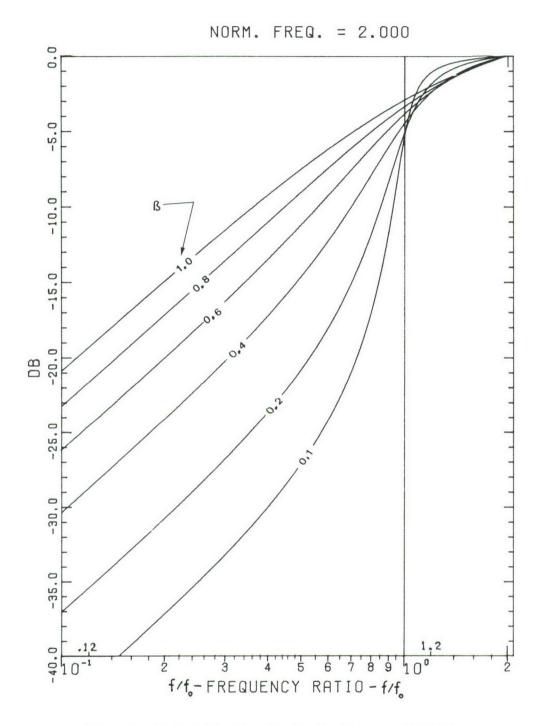


Figure 2. Typical Flex Function for Low Frequency Rolloff

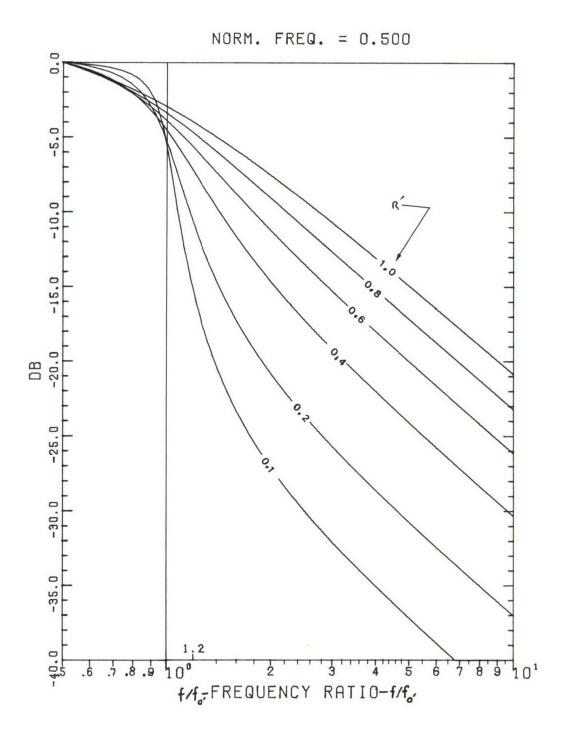


Figure 3. Typical Flex Function for High Frequency Rolloff

#### 2.1 Low Frequency Boost

If we examine the arctan portion of, say, equation (1), we note that the numerator is of the form  $2\beta(\omega/\omega_0)^{\alpha}$ , where  $\alpha$  = 1 for the functions represented by Figures 2 and 3. However, by allowing  $\alpha$  to go to zero a novel but useful low frequency preemphasis results (Figure 4). In short, the curves (in the low frequencies) are raised; given bass boost, as the audiophiles are fond of saying. Such a phenomena corresponds to what happens to the aircraft vibration spectra as the aircraft passes through certain stages of its flight profile -- for example, during taxi, takeoff roll, the dumping of speed brakes, or flaps; and during gunfire or inflight refueling phases. Note that we may make  $\alpha$  a function of time and, operating within the limits of  $\alpha$  = 1 and  $\alpha$  = 0, we are able, in a gradual, continuous, and reversible way, to effect the smooth transition from one state to the other. This property is of significance when we view the function as a programmable system capable of describing a useful variety of flight vibration phases.

Notice that identical variations can be reflected into the high frequency rolloff curve (equation 13) by assigning an  $\alpha'$  within the interval of 1 and 2. Figure 5 shows a set of functions for  $\alpha'$  = 2.00. From here on out, alpha will follow the same diacritic symbolism as has been assigned to the other high and low frequency rolloff parameters. Thus,  $\alpha$  is assigned to the low frequency rolloff equation and  $\alpha'$  refers to the exponent for the high frequency rolloff case. Also, note that unless  $\alpha$  and  $\alpha'$  are specifically stated, their values are always presumed to be unity.

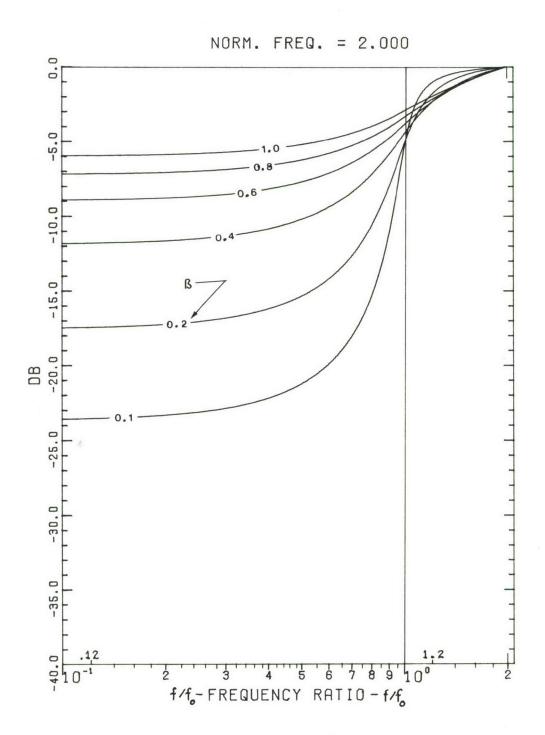


Figure 4. Flex Function with Low Frequency Boost

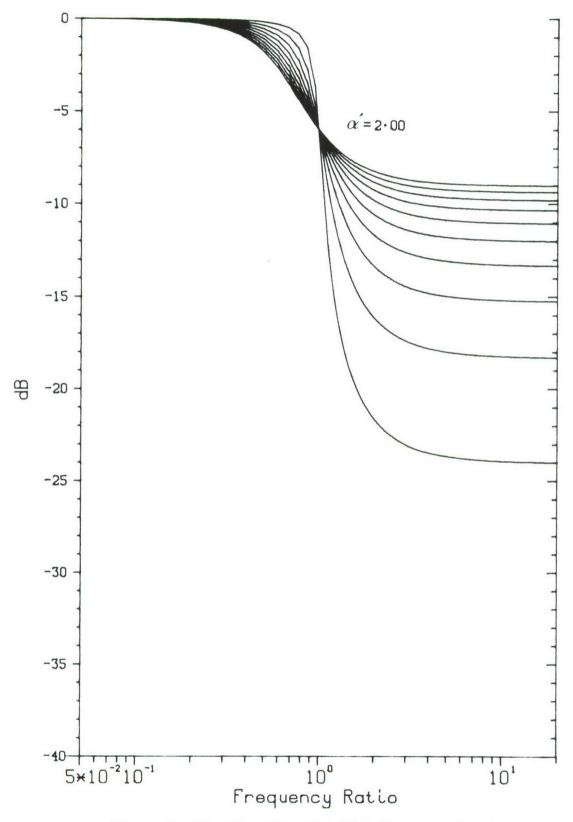


Figure 5. Flex Function with High Frequency Boost

#### 2.2 Boundary Layer Spectra

If we choose x' = .01 for the high frequency rolloff function we will obtain a form characterized by a relatively expansive, flat spectrum in the lower frequency part of the curve. Moreover, if we select somewhat different values of  $\beta'$  (0.2, 0.3, 0.4, 0.6, 0.8, 1.0, 1.5) we will have defined a family of curves that will serve to provide a good fit for the pressure spectral density of the boundary layer for a large number of aircraft flight conditions. The boundary layer curves are shown as Figure 6.

#### 3.0 Prediction Equations

The flex function is broken out into the forms and relationships to be used in the computer program. First, the equations are stated in order of progression.

$$P(f) [\phi_n(x)L(f), M(f), H(f)] = G(f)$$
 (14)

where:

- $\phi_n(x)L(f)$  = the product of the bending mode shape,  $\phi_n(x)$ , at downstream distance, x, and the low frequency transfer function, L(f), of the aircraft fuselage.
- M(f) = the medium frequency transfer function of the aircraft fuselage internal structure.
- G(f) = the PSD response of the aircraft primary structure  $(g^2/Hz)$ .

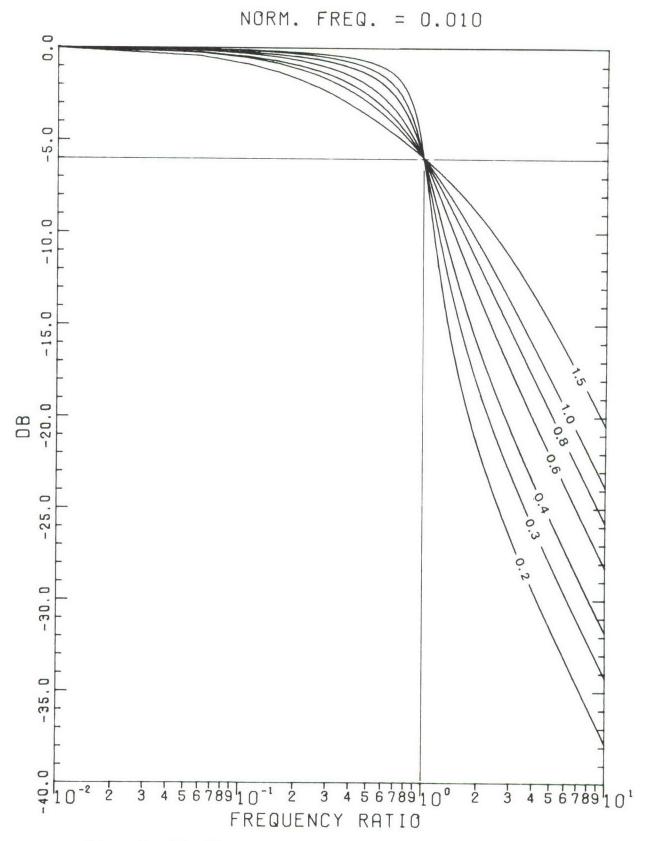


Figure 6. Flex Function Applied to the Aircraft Boundary Layer

The term, primary structure, is defined as that structure of the air-craft which comprises the main load carrying members or elements of the aircraft. Examples of primary structure are skin, frames, rings, bulkheads (periphery), stringers and includes those consoles structurally integrated with the aircraft outer walls.

The working forms for P(f) are described in Appendix A and are listed as equations A-1, A-2, A-3, and A-4.

The mode shape,  $\phi_n(x)$ , is a function of aircraft type and is included in Appendix B for typical aircraft. The aircraft structural transfer functions L(f), M(f), and H(f) are listed in Appendix C together with appropriate tables.

#### 3.1 Special Functions

Certain flight phases, that deviate from the straight and level condition, are introduced by operating on P(f) with special functions designated, S(f).

$$P(f)S_{RT}(f) = P_{RT}(f)$$
 (15)

$$P(f)S_{TB}(f) = P_{TB}(f)$$
 (16)

$$P(f)S_{T}(f) = P_{T}(f)$$
(17)

$$P(f)S_{L}(f) = P_{L}(f)$$
(18)

where:

 $S_{BT}(f)$  = Special function for the buffet turn flight phase.

 $P_{BT}(f)$  = Pressure spectral density spectrum of a fighter aircraft during buffet turn (PSF $^2/Hz$ ).

 $S_{T}(f)$  = Special function for the takeoff phase.  $P_{T}^{T}(f)$  = Equivalent pressure spectral density spectrum of an aircraft during the takeoff phase (PSF /Hz).

 $S_{T}(f)$  = Special function of an aircraft during the landing phase.

 $P_{\tau}(f)$  = Equivalent pressure spectral density spectrum of an aircraft during the landing phase (PSF2/Hz).

 $S_{TP}(f)$  = Special function for low frequency atmospheric turbulence.

These special functions together with their appropriate tables, curves, and explanations are found in Appendix D.

The second set of basic equations is as follows:

$$G(f) Y(f) = R(f)$$
(19)

where:

Y(f) = the transfer function for equipments mounted on secondary structure.

R(f) = the PSD response of the secondary structure, or the input to the aircraft equipment, mounted thereon

Secondary structure is defined as that structure to which equipment is attached onto or contained in and whose mounting points terminate at the outer frame, skin, stringers, bulkheads, floors, spars or cast framing of the primary structure. Examples of secondary structure are instrument panels, trays, racks, brackets, shelves, trusses, beams, and consoles.

The final equations apply to those equipment mounting configurations in which isolated equipment are mounted on secondary structure:

$$R(f) Y_{I(a)}(f) = a(f)$$
 (20)

where:

a(f) = The response of the isolated equipments  $(g^2/Hz)$ .

 $Y_{I(a)}(f) = Transfer function for equipment mounted on isolators.$ 

#### 3.2 Equipment Mounting Categories

How and when G(f), Y(f), and a(f) are used depends upon what, how, and where the equipment is mounted in the aircraft -- and this is established by reference to equipment mounting categories and their associated transfer functions which are classified as follows:

#### Category I - Equipment(s) attached to primary structure

- a. Isolated. Equipment(s) attached to primary structure through vibration isolators.
- b. Non-Isolated. Equipment(s) directly attached to primary structure.

#### Category II - Equipment attached to instrument panels

- a. Isolated. Equipment(s) whose instrument panel is attached to primary structure through vibration isolators.
- b. Non-Isolated. Equipment(s) whose instrument panel is directly attached to primary structure.

#### Category III - Equipment(s) mounted on shelves or in racks

a. Isolated. Equipment(s) attached to shelves or in racks with shelf or rack isolated.

- b. Non-Isolated. Equipment(s) attached to shelves or racks with shelf or rack non-isolated.
- Category IV Equipment(s) that is isolated and mounted on shelves or in racks.
  - a. Category III(a) with equipment(s) isolated.
  - b. Category III(b) with equipment(s) isolated.
- Category V Lightweight equipment items directly attached to primary structure via light bracketry.
- Category VI Equipment(s) mounted to or on the bulkhead of the forward looking radar (FLR).

The categories of transfer functions, their tables, curves, and applications are found in Appendix E.

#### SECTION III

#### PROGRAMMING

The equations shown in Paragraph 3 of Section II for predicting power spectral density inputs to aircraft equipment are laborious to evaluate - given many selected frequencies over a relatively wide band. And, even though these equations are few in number and are not of themselves complex, a digital computer program was, nonetheless, strongly suggested. Such a program, therefore, was prepared to evaluate the prediction equations at a frequency resolution sufficiently fine to produce quality plots and in the combinations and sequences required by the particular set of input data which describes the aircraft flight profile.

Conceptually, the program is so designed that a minimum of information on flight conditions is required as input for predicting the vibration profiles of the aircraft structure and equipments.

The input data consists, chiefly, of numerical values and descriptive information concerning such flight parameters as aircraft type, altitude, Mach number, equipment weight, mounting categories, and flight maneuvers.

For output, the values of the particular transfer and response functions, which were a part of the prediction process, are printed in tabular form and presented as a function of frequency. If desired, plots of these results can be produced on peripheral plotters.

#### 1.0 Program

The program consists of a relatively large main section which, in its operation, "calls" approximately a dozen subroutines. The structure is simple.

#### 2.0 Program Preparation

The program is prepared for execution by first punching numerical and alpha-numeric descriptive information for key aircraft and flight profile parameters on cards, in specified field locations; then inserting these cards in the program deck at its end.

#### 2.1 Execution

On program execution, tabulations of the input, the transfer and the response functions are printed (dB as a function of frequency). The information necessary for producing plots of these tabulated values is transferred in a device-independent, standard form from central memory to a permanent file located in mass storage.

In the final step, plots of all or selected transfer functions are obtained by executing a small post-processor program containing a plot-directive card which is inserted by the user. This program provides for transfer of the plot information from the permanent file to central memory and also provides a "write", on magnetic tape, of information necessary for a plot of each of the functions specified on the plot-directive card. This tape is mounted on a CALCOMP plotter to produce the plots.

Before we proceed to the program deck card order -- the plot, the keyboard instructions, and, finally, the card preparation -- it is useful to note that the basic language and format of the program (Appendix F) is Fortran IV and as such may be readily adapted to other computer facilities. However, certain address characteristics of the card arrays, the plotting, the display instructions reflect the needs of the individual computer facility; and the demands of its terminals. In this report, the ASD Computer Facility and Terminals are invoked -- elsewhere, the reader is invited to consult local computer services.

# 2.2 Functions \* Available for Plotting

	0420601100 14, 114, 110, 1114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 114, 1
Straight and Level	P(f), G(f), Y(f), R(f)
Buffet-Turn	$P_{BT}(f)$ , $G_{BT}(f)$ , $Y(f)$ , $R_{BT}(f)$
Takeoff	$P_{T}(f)$ , $G_{T}(f)$ , $Y(f)$ , $R_{T}(f)$
Landing	$P_L(f)$ , $G_L(f)$ , $Y(f)$ , $R_L(f)$
Turbulence	$P_{TB}(f)$ , $G_{TB}(f)$ , $Y(f)$ , $R_{TB}(f)$
	Categories IVa and IVb
Straight and Level	Categories IVa and IVb  P(f), G(f), Y(f), R(f), Y <sub>1A</sub> (f), A(f)
Straight and Level Buffet-Turn	
	P(f), G(f), Y(f), R(f), Y <sub>1A</sub> (f), A(f)
Buffet-Turn	P(f), G(f), Y(f), R(f), Y <sub>1A</sub> (f), A(f)  P <sub>BT</sub> (f), G <sub>BT</sub> (f), Y(f), R <sub>BT</sub> (f), Y <sub>1A</sub> (f), A <sub>BT</sub> (f)
Buffet-Turn Takeoff	P(f), G(f), Y(f), R(f), Y <sub>1A</sub> (f), A(f)  P <sub>BT</sub> (f), G <sub>BT</sub> (f), Y(f), R <sub>BT</sub> (f), Y <sub>1A</sub> (f), A <sub>BT</sub> (f)  P <sub>T</sub> (f), G <sub>T</sub> (f), Y(f), R <sub>T</sub> (f), Y <sub>1A</sub> (f), A <sub>T</sub> (f)

Categories Ia, IIa, IIb, IIIa, IIIb, V, VI

<sup>\*</sup> See Appendices D and E

Category Ib

Straight and Level P(f), G(f)

Buffet-Turn  $P_{RT}(f)$ ,  $G_{RT}(f)$ 

Takeoff  $P_{T}(f)$ ,  $G_{T}(f)$ 

Landing  $P_{\underline{I}}(f), G_{\underline{I}}(f)$ 

Turbulence  $P_{TR}(f)$ ,  $G_{TR}(f)$ 

Execution is essentially sequential -- the only important branch is a loop from the program end back to the beginning in order to repeat the process whenever the aircraft flight parameters change. All other branches terminate at nearby statements.

Transfer and response functions can be plotted on a CALCOMP (incremental) plotter. Calls are made to selected subroutines in the  ${\tt DISSPLA}^{\star}$  software system for the desired data display.

Salient features of program design are summarized below.

Language: FORTRAN IV

Digital Computer: Control Data Corp., 6600 and

Cyber 73 computers

Central Memory

Requirements: 120,000 (octal) words for compiler;

program, and plot subroutines

Word Size: 10 characters

Variable Name

Size: 6 characters, maximum

Input Data: Punched on 80-column cards

<sup>\*</sup> The acronym for "Display Integrated Software System, and Plotting Language," developed and sold by the Integrated Software Systems Corp., San Diego, CA.

Output:

135-column printed tabulations and

off-line plots

Library Mathe-

matical Functions: Common logarithm and arc-tangent

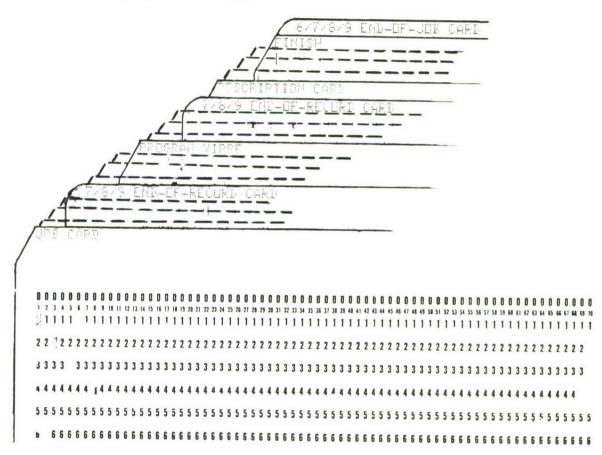
(double argument)

# 3.0 Program Deck Setup and Card Preparation

## 3.1 Job Deck Setup

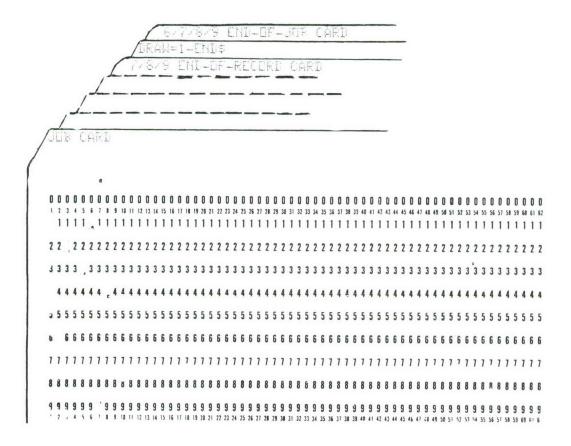
The first step in the procedure to obtain plots of the predicted vibration spectra requires the execution of the program, VIPRF. Upon execution, a printed output is produced; likewise, the plot information is transferred to a permanent file.

The following illustration shows the structure of the card deck setup for program execution.



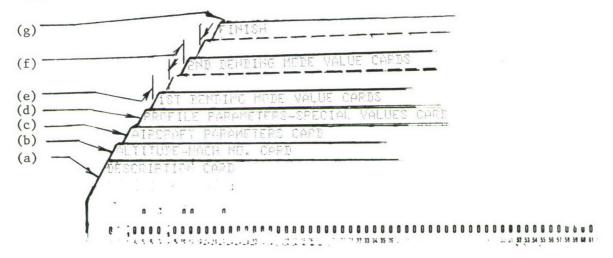
The second and final step in the procedure involves execution of either the ONLINE or the OFFLINE, DISSPLA, post-processor plot program. In this phase, plot information is obtained from the permanent file (previously generated); then, plots are produced either on-line or off-line, in this case, utilizing a CALCOMP plotter.

The structure of the deck setup is shown in the following illustration.



#### 3.1.1 Input Data Deck Setup

Program input data is entered on the cards shown in the next illustration. Note that the cards must be inserted in the deck in the indicated order.



The Description, the Altitude-Mach Number, and the Aircraft Parameter cards must always be prepared and inserted in the deck.

The Profile Parameters and Special Values cards must always be inserted. If the values are already stored in the program (as is, currently, the case for the F-4, F-15, F-16, F-111, and the A-7), then a blank card must be inserted. Any profile parameter or special value can be changed, however, by entering the desired value on the normally blank card. This feature permits the user to "write over" the stored values as the situation requires. If an aircraft different from the stored group is chosen, then a Profile Parameters and Special Values card must be inserted with appropriate entries. Note that in either case, a card must be inserted, blank or not.

The procedural mechanics are more complex when dealing with the first and second bending mode value cards. Here, the combination of orders of proper card usage are such that special guidance must be provided in the form of a summary aid and a table, both of which now follow.

#### 3.1.1.1 Summary of Input Data Card Structure

We return to the last illustration to summarize the rules of order and procedure concerning the card structure of the input data. The summary also makes reference to special guidance in the form of Table I.

#### AFFDL-TR-77-101

# <u>Cards</u> <u>Remarks</u>

- a,b,c These cards must always be prepared and inserted in the deck.
- A blank card is normally inserted in the deck if aircraft is of the previously stored group (see 3.1.1).

  Stored values may be written-over by inserting desired values on the blank card. For aircraft not of the stored group, enter appropriate values on the blank card (see Table I).
- e,f

  Both card sets are normally omitted if the aircraft is of the previously stored group; however, if data changes are required, see Table I.
- g The FINISH card must always be inserted at the end of a set of data cards.

TABLE I Card Usage Guidance -- Bending Mode Data

	Special Entries In Card (d)		enter f <sub>2n</sub> =0			enter f <sub>2n</sub> =0	
	Insert Cards:	(a) thru (d) followed by (g)	(a) thru (d) followed by (g)	(a) thru (d) followed by a blank card, followed by a set of 2nd bending mode cards (f); followed by (g)	<pre>(a) thru (d) followed by a set of lst bending mode cards (e); followed by (g)</pre>	<ul><li>(a) thru</li><li>(d) followed by a set</li><li>of 1st bending mode cards</li><li>(e);</li><li>followed by</li><li>(g)</li></ul>	
	Unavailable		×			×	
2nd Mode	Read From External Input Data			×			
	Stored Data Cards	×			×		
1st Mode	Read From Input Data Cards				×	×	
Js	Stored Data Cards	×	×	×			

#### 3.1.2 Card Preparation for Input Data

Each card example is shown in proper sequence, selected and punched with the input data for the program. Included are column identifications, associated nomenclature, and explanatory references.

#### 3.1.2.1 DESCRIPTION Card

-	-	_	-	-	-	-	-									-	_	-	-	-	-			-	-	_		7.00	-174	-	-	-		-					- 350					-	-			_	_		-	_	_	_			_		1		
1	2	- 3	-	-5	ь	- /-	8	ų i	1	1 1		3	4	1	0 1	7.1	8	-			-	23	24 7	25	2	7 2	8	29	30 0	31		33	,	35 3	3 3	3.8	39	40	41	42	43	41	45	15 4	7.4	43	50	51	52	53 5	1 5	56	57	33	38	60 (	1 6	2 63	E.	+	
-	-		_		_		_		_	_		_		_	-	_	_	,		,			_		-				7-		_		,	-	_							,	-			_															
-	1	5	13		4	3	.6	7	1	1	3	12		1	1	1,	1		15	18		17	10	19	1	1	21	22	2	3	24	15	1	18	7	28	25	30	3	1	32	33	3.	3	5 3	6	37	30	39	40	4:	42	4	3 1	14	45	46	17	45	43	
L								_	_				_	_					_						_				_																																
n	0	0	0	0	0	U	0.	1	1	) (	0	0	0		3	)	) (	)	C	0	0	0		0 (	0 (	) (	0	0	0		0	0	0	0 0	0	0	0	0	0	0	0	0	0	0 (	) (	0	0	0	0	0 0	0	0	0	0	0	0 !	0 (	0 0	U	,	(
U									- 1										- 1															35 3																			-	-		- 1			-		П

#### Aircraft Type

COL. 10 Aircraft Type (center aircraft designation in 10-column field to obtain centering plot titles)

Note that the following aircraft types occupy a specific columnar order because certain of their values (Profile Parameters and Special Values; First and Second Bending Mode values) have been previously stored in the program.

COL. 
$$4-6$$
 F-4  $4-7$  F-15  $4-7$  F-16  $4-8$  F-111  $4-7$  A-7D Enter on card exactly as specified here.

This order requirement also holds for any future aircraft, so stored. For example, the A-10 would occupy columns 4 through 7.

#### Equipment Description

COL. 11-30 Name of equipment item or location (center name in 20-column field to obtain centering in plot titles)

#### Flight Condition

COL. 31-35 SANDL, straight and level

#### AFFDL-TR-77-101

- COL. 31-32 BT, buffet-turn \* (see Appendix D)
- COL. 31-37 TAKEOFF, takeoff (see Appendix D)
- COL. 31-37 LANDING, landing (see Appendix D)
- COL. 31-32 TB, turbulence (see Appendix D)

\*Requires a straight and level reference flight condition that must be entered in the Altitude-Mach Number card (see 3.1.2.2).

#### Plot Selection

- COL. 41-50 Leave all columns blank if only the plot of the final response function is desired [G(f), R(f), or A(f)].
- COL. 41-43 Enter ALL, if plots of <u>all</u> of the special, transfer, and response functions are <u>desired</u>.

#### 3.1.2.2 Altitude-Mach Number Card

:	2	3	4		6	7	8	1	11	12	13	14 1	5 1	6 1	7 1	1 1	20	21	22	23	24	25	26	27	28	23	30 3	31 3	32 3	33 :	4 3	5 39	37	38	39	40	41 4	2 4	3 44	43	45	47	40	49	50	5
		2	3	14	1	5	8	7	8	9	10		1	12	13	14	I	5	6	17	18	I	9	20	21	2	2 2	3	24	25	26	2	7	8	29	30	31	37	13	3	34	35	36	3	7	38
0		-		0	0	0	0 0																																							
	2	3	4	5	6	7	8 9	) 1	3 11	12	13	14	15	6 1	7 1	3 1	3 20	21	22	23	24	25	26	27	28	23	30	31 :	32	33	34 3	5 3	37	38	30	40	41 4	2 4	3 44	45	5 46	47	43	49	50	51

- COL. 1-8 Altitude, H, feet, of 1st altitude-mach number combination.
- COL. 9-13 Mach no., M, of 1st altitude-mach number combination.
- COL. 14-21 Altitude, H, feet, of 2nd altitude-mach number combination.
- COL. 22-26 Mach no., M, of 2nd altitude-mach number combination.
- COL. 27-34 Altitude, H, feet, of 3rd altitude-mach number combination.
- COL. 35-39 Mach No., M, of 3rd altitude-mach number combination.
- COL. 40-47 Altitude, H, feet, of 4th altitude-mach number combination.
- COL. 48-52 Mach no., M, of 4th altitude-mach number combination.
- COL. 53-60 Altitude, H, feet, of 5th altitude-mach number combination.

- COL. 61-65 Mach no., M, of 5th altitude-mach number combination.
- COL. 66-73 Altitude, H, feet of 6th altitude-mach number combination.

HIF

COL. 74-78 Mach no., M, of 6th altitude-mach number combination.

#### 3.1.2.3 AIRCRAFT PARAMETERS Card

54.0

		0																																																											-	_	_	_	_	_	_	_	_	-	-	-	_	_	
1	2	3	4	1	5	6	1	ě	9	10	11	12	13	14	1	5	16	17	18	19	20	21	22	23	24	25	26	21	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	45	47	48	19 5	0 5	1 5	2 5	3 5	1 55	5	5	58	5	9 64	1 6	62	63	64	65	66	67	68	69	70	71	72	73	1	4
1	1	1	1		1	1	1	1	1	1	1	1	1	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1 1	1 1	1 1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			1	1	
2		2	2	! :	2	2	2	2	2	2	2	2	2	2	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2 :	2 :	2 2	2 2	2 2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2		-	2

- COL. 1-10 Aerodynamic distance,  $x_F$  (feet) (see Appendix B).
- COL. 11-20 Distance of equipment from skin,  $R_s$  (inches).
- COL. 21-30 Equipment weight,  $W_{\rm F}$  (pounds).

0.

- COL. 31-40 Nominal fuselage diameter,  $D_F$ ; at  $x_E$  (inches).
- COL. 41-50 Aircraft skin thickness, t (inches).

## Center Frequency, $f_c$ , of Transfer Function, Y(f)

## If Category is not IVa, IVb, or Ib\*

- COL. 51-60 Center frequency of specified category, f<sub>c</sub>, (Hz) (leave blank if unknown).
- COL. 61-70 Blank.

<sup>\*</sup>For selection guidance, see Table II. Also, note that Category I(b) has a transfer function (previously built into the program) that is automatically invoked when I(b) is selected (see Figure E-1(b)).

## If Category is IVa or IVb\*

COL. 51-60 Center frequency for Category Ia,  $f_{cIA}(Hz)$  (leave blank if unknown).

COL. 61-70 Center frequency, f (Hz) for Category IIIa, if Category IVa is specified; Category IIIb, if Category IVb is specified (leave blank if unknown).

#### COL. 71 Skin material

A for aluminum

T for titanium

S for steel

M for magnesium

TABLE II

Recommended Center Frequencies of Y(f) When f is Either Unknown or Unspecified

Category	f	c
Ia	25	Hz
IIa	43	Hz
IIb	40	Hz
IIIa	25	Hz
IIIb	35	Hz
V	200	Hz

<sup>\*</sup>For selection guidance, see Table II. Also, note that Category I(b) has a transfer function (previously built into the program) that is automatically invoked when I(b) is selected (see Figure E-1(b)).

#### Equipment Mounting Category (see Appendix E)

COL.	72-73	1A	for	Category	Ia
		1B			Ib
		2A			IIa
		2B			IIb
		3A			IIIa
		3B			IIIb
		4A			IVa
		4B			IVb
COL.	72	5			V
		6			VI

#### 3.1.2.4 PROFILE PARAMETERS AND SPECIAL VALUES Card\*

	2	3	_	5	6	7	H	9	10	11	12	1	14	15	5 13	3 1	1 1	1 "	20	21	22	23	24	25	26	27 2	8 2	9 3	0 3	11 3	2 3	3 34	33	35	37	38	33 4	0 4	1 3	2 4	44	45	46	47	48	49 !	50	51 5	2 5	3 54	55	56	57 5	8 5	9 60	61	62	63 (	64 6	5 6	6 6	68	65	10	71	12	-
	1		3	Ι	4	5	6	Ι	I	3	3	I	10	11	I	2	13	14	Is	L	6	17	18	19	]2	0	21	22	2		24	25	26	27	2	8 2	9	30	31	32	33	3	4	35	56	37	3	8 3	19	40	41	42	43	14	4	4	6	47	48	49	50	15	1	52	33	54	I
0		0	0	0	0	0	0	0	0	0	O	0	0	1	1	1	1	0	0	0	0	0	0	Û	0	0 1	0 1	0 (	oTi	) (	0	0	0	0	0	0	0	0 0	) (	0	0	Ō	U	0	0	0	0	0	0	0	0	0	0	0 0	0	0	0	U	G	0 [	0	0	0	0	0	0	Ī
1	1	3	1	1	1	1	1	9	10	11	12	13	1	1 1	5 1	6 1	7 1	1 1	1	21	22	23	24	25 1	26	27 2	1	1	1	1 1	1 1	3 34	1 33	36	37	38	39	1	1 4	2 4	1	1	1	1	48	1	1	1	1 1	3 54	1	1	1	1 1	1	1	1	63 (	1	1	6 6	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	? 2	? ?	2 2	2	2	2	2	2	2	2	2	2 :	2 :	2 :	2	2 2	2 2	2	2	2	?	2	2	2 2	2 2	2 2	2	2	2	2	2	2	2	2	2 2	2 2	2	2	2	2 2	2	2	2	2	2 :	2 :	2 2	2	2	2	2	2	
13		3		3	3	3	3	3	3	3	3	3	3	1 3	3 3	3 :	3 3	3	3	3	3	3	3	3	3	3 :	3 :	3 :	3	3 :	3 3	3 :						1		•	3	3	3	3	3	3	3	3	3 3	3 3	3	3	3	3 3	3	3	3	3	3 :	3 :	3 3	3	3	3	3	3	:

- COL. 1-10 First fuselage bending mode, vertical, symmetric  $f_n(Hz)$  (see Appendix B).
- COL. 11-20 Maximum of first bending mode low frequency transfer function,  $L_{M}(f)(dB)$  (see Appendix C).
- COL. 21-30 Second fuselage bending mode, vertical, symmetric,  $f_{2n}(Hz)$  Enter zero if  $f_{2n}$  is unavailable (see Table I).
- COL. 31-40 Maximum of second bending mode low frequency transfer function,  $L_2(f)_M(dB)$ . (see Appendix C)
- COL. 41-50 Maximum of special function,  $S_{BT}(f)_{M}(dB)$  (see Appendix D).
- COL. 51-60 Distance to aircraft mid-chord at wing,  $x_{\mbox{BT}}$  (feet) (see Appendix D).

<sup>\*</sup>Card is normally blank unless specific changes are required or unless aircraft type is other than F-4, F-111, F-15, F-16, and A-7; in which case, the appropriate parameters and special values <u>must</u> be entered (see 3.1.1.1).

- COL. 61-70 Distance to main landing gear strut,  $x_T$  or  $x_L$  (feet) (see Appendix D).
- COL. 71-80 Multiplication constant, K. Unless otherwise specified, K=1 (leave blank if straight-and-level flight condition (SANDL) is specified).

#### 3.1.2.5 FIRST BENDING MODE VALUES Cards

#### Card 1

- COL. 1-2 No. of ordinal (dB) values, N
- COL. 3-8 Interval,  $\Delta x$ , along abscissa
- COL. 9-14 Value 1, db
- COL. 15-20 Value 2, db
- COL. 75-80 Value 12, db

#### Card 2

- COL. 1-6 Value 13, db
- COL. 7-12 Value 14, db
- COL. 73-78 Value 25, db

#### Card 3

- COL. 1-6 Value 26, db
- COL. 7-12 Value 24, db
- COL. 73-78 Value 38, db

#### Card 4

- COL. 1-6 Value 39, db
- COL. 7-12 Value 40, db
- COL. 73-78 Value 51, db

#### AFFDL-TR-77-101

The above values of dB(x),  $db(x_I)$ , correspond to values of downstream distance x, which are uniformly spaced,  $\Delta x$  apart:

$$dB(x_T) = db [(I-1)\Delta x], I = 1, 2, ..., N$$

If N  $\geq$  52, prepare additional cards, as required, with 12 values per card, following the format of card 2.

3.1.2.6 SECOND BENDING MODE VALUES Cards (Omit these cards if no entry is made for  $f_{2n}$ ).

#### Card 1

COL. 1-2 No. of ordinal (db) values, n

COL. 3-8 Interval, Ax, along abscissa

COL. 9-14 Value 1, dB

COL. 15-20 Value 2, dB

COL. 75-80 Value 12, dB

#### Card 2

COL. 1-6 Value 13, dB

COL. 7-12 Value 14, dB

COL. 73-78 Value 25, dB

#### Card 3

COL. 1-6 Value 26, dB

COL. 7-12 Value 27, dB

COL. 73-78 Value 38, dB

#### Card 4

COL. 1-6 Value 39, dB

COL. 7-12 Value 40, dB

COL. 73-78 Value 51, dB

For n  $\geq$  52 and for an explanation of the origin of the decibel values, refer to the remarks made for the first bending mode values.

## 3.1.2.7 FINISH Card\*

#### COL. 1-6 FINISH

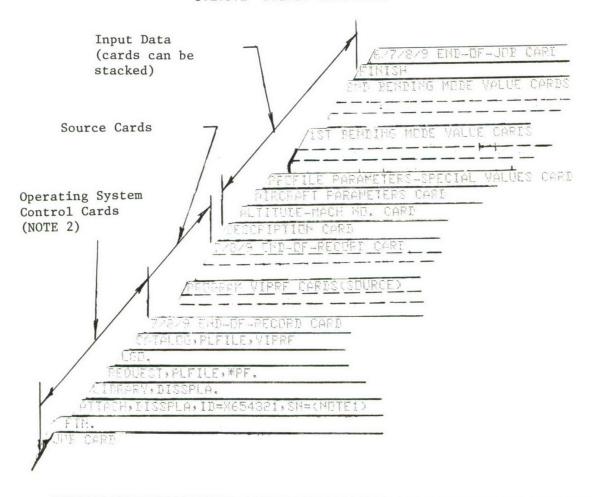
## 3.1.3 Deck Setup Card Forms ("Source" and "Binary")

In the following illustrations, deck setups are shown for execution of the program in both the source and the binary card form (Control Data Corp. 6600 and Cyber 74 Computer System, using the NOS/BE operating system).

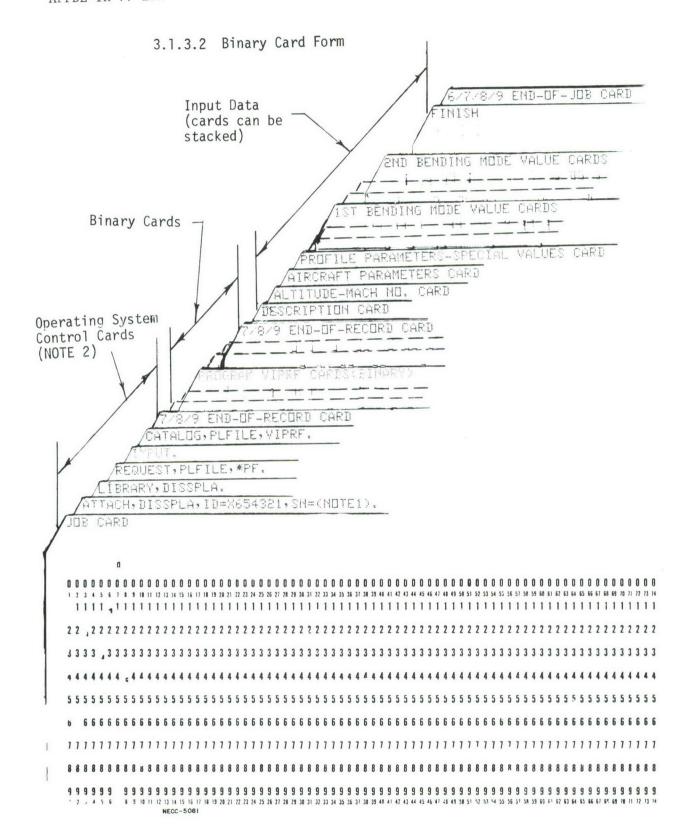
The DISSPLA plot file (PLFILE) is copied to the permanent file, VIPRF.

Both illustrations refer to notes that are found at the end of 3.1.4.3.

#### 3.1.3.1 Source Card Form



\*Must be last card in every set of input data cards -- cannot be omitted.



## 3.1.4 Plot Programs ("On-line" and "Off-line")

In the following illustrations, deck setups are shown for executing the "on-line" and "off-line," DISSPLA, post processor plot programs.

## 3.1.4.1 "On-line" Plot Program

DISSPLA plots are produced on-line, on a CALCOMP plotter.

/6/7/8/9 END	-OF-JOB CARD
DRAW=1-END\$	
7/8/9 END-OF-RE	COURD CARD
RETURN, DISSPLA, PL	FILE.
ONLINE.	
ATTACH, PLFILE, VIPRF,	CY=(NOTE 3),ID=(NOTE 3).
CIBRARY, DISSPLA.	
TTACH, DISSPLA, ID=X65432	1,SM=(MOTE 1).
B CARD	

#### 3.1.4.2 "Off-line" Plot Program

Final plot information is copied to file on magnetic tape (Tape 99). Then, this tape is transferred to an off-line plotter system for graphical recording. However, before any of this can be done, it is necessary to request (Computer Operations) the desired tape to be assigned to Tape 99. In the case illustrated here, the tape number is L02391. Note that if the job deck is submitted at the ASD Computer Center, Operations must be so instructed through submission of card form ASD-59, 'Magnetic Tape Transaction Request." On this form the tape number and associated problem number is entered; whereupon the form is submitted together with the job deck. Finally, subsequent to plot program execution, Operations must be directed to mount the tape on the off-line plotter through submission of card form ASD-227, "Data Preparation Request." This card must include the tape and associated problem number as well as identification and plot information obtained from the day file of the computer program listing.

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1 2	2 3	4	5	6	1	8 9	10	11	12	13	14 1	5 11	6 17	18	19 2	20 2	22		24 2		-	28	29 3			33	-	35	36 3	7 38	3 3 9	40	41 4	2 43	44	45	46 4	7 48	49	50 5	51 5	2 53	54	55	6 5	7 58	59	60	1 62	1	
1	1 1	1	1		1	1 1	1	1	1	1	1	1 1	1	1	1	1 1	1	1	1 1	1	1	1	1	1 1	1	1	1	1	1 1	1	1	1	1 1	1	1	1	1 1	1 1	1	1	1	1	1	1	1 1	1	1	1	1 1	1	1
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4 4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4 4	4	4	4 4	4	4	4	4	1 4	4	4	4	4	4 4	A	4	4	4 4	4	4	4	4 4	1 4	4	4	4 4	4	4	4	4 4	4	4	4	4	4	4
5 5	5 5	5	5	5	5 5	5 5	5	5	5	5 !	5 5	5 5	5	5	5 !	5 5	5	5	5 5	5	5	5	5 5	5 5	5	5	5	5 !	5 5	5	5	5	5 5	5	5	5	5 5	5 5	5	5	5 5	5	5	5 !	5 5	5	5	5	5 5	5	5
b	6	6	6	6	6 (	6 6	6	6	6	6	6 (	6	6	6	6 1	6 6	6	6	6 6	6	6	6	6 8	6	6	6	6	6	6 6	6	6	6	6 6	6	6	6	6 6	6	6	6	6 6	6	6	6	6	6	6	6	6	6	6
11	1 1	7	7	7	, .	1 1	7	7	7	7	7 :	1 1	7	7	7 .	1 1	7	7	7 7	7	7	1	7 1	, ,	7	7	1	7 .	, ,	7	7	7	1 1	7	7	7	7 1	, ,	7	7	, ,	,	7	,	, ,	7	7	7 .		,	7
' '	' '	'	'	'		' '		1	'	'	1		1	•	1	, ,	1	1	1 1	1	1	1	1	'	1	1	1	1	1 1	1	1	,	1 1	1	1	1	1 1	1	1	1	, ,	1	1	1	' '	1	1	1	1	1	1
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	(0)		•							NEC						- 1	22		7 41	. 20				. 31	32		**			30	33	4.1		43	**	73 .			-3	36 3		4.1	,4	94 4	4 3	3					

# 3.1.4.3 Keyboard Visual Display

## Keyboard Commands

LOG-IN INFORMATION (see ASD Computer Center Intercom Guide)
ATTACH, PLFILE, VIPRF, CY=(NOTE3), ID=(NOTE3)
ATTACH, DISSPLA, ID=X654321, SN=(NOTE1)
XEQ, LIBLOAD=DISSPLA, TEK4010
DRAW=1-END\$
LOG-OUT

#### NOTES:

- 1. SN = ASD for computer system A. SN = AFIT for computer system B.
- 2. Refer to ASD computer center handbook, CDC NOS/BE USER'S GUIDE (latest revision).
- 3. CY = Permanent file cycle number shown in dayfile of computer listing.
  - ID = Problem number under which permanent file was catalogued
     (shown in dayfile of computer listing).

#### SECTION IV

#### APPLICATIONS

#### 1.0 Examples

To illustrate the applications of the prediction program, a number of fighter aircraft are selected for a variety of equipment locations, categories, and flight conditions.

#### 1.1 F-4 (skin)

The inputs (card entries) are:

	SKIN	RESPONSE	SANDL
H	=	2000.0	ALTITUDE (FT.)
M	=	.77	MACH NO.
$X_{F}$	=	32.60	DISTANCE FROM THE LEADING EDGE OF
ь			THE FUSELAGE AERODYNAMIC PROFILE (FT.)
RS	=	0.00	DISTANCE FROM SKIN (IN.)
R <sub>S</sub> W <sub>E</sub>	=	0.00	EQUIPMENT WEIGHT (LBS.)
Ť	=	.0400	THICKNESS OF SKIN MATERIAL (IN.)
$D_{F}$	=	54.0	DIAMETER OF FUSELAGE (IN.)
MATERIAL	=	ALUMINUM	TYPE SKIN MATERIAL
CATEGORY	=	1B	EQUIPMENT MOUNTING CATEGORY

The input, as it is entered on the input data cards, is shown in Figure 7. (Each of the five examples in this section are accompanied by their respective array of input data cards.) Note that five cards per array are shown — in agreement with the guidelines provided by Table I and 3.1.1.

As an illustration, this example is rather special. It is interesting because the results describes the response of the unloaded

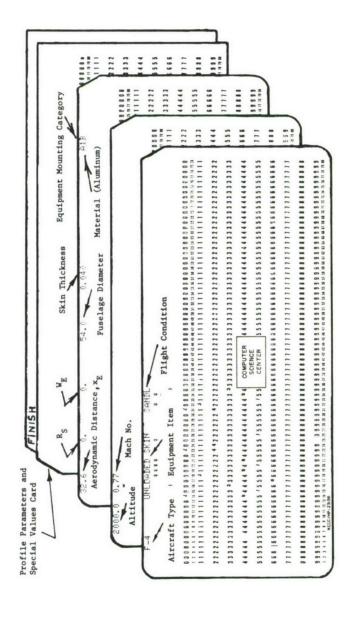


Figure 7. Input Data Cards, RF-4C Skin

skin ( $R_S$  and  $W_E$  = 0) for straight and level (SANDL) flight. See Figures 8 and 9. The low frequency hump in Figure 9 represents the vibration contributions of the first and second fuselage bending modes.

#### 1.2 F-16 (FCC)

Here, the prediction program describes the vibration input to the Flight Control Computer (FCC) of the F-16 (Figures 11 and 12) during straight and level flight. This example introduces the equipment configuration in which  $R_{\rm S}$  and  $W_{\rm E}$  are greater than zero -- as will be the case from here on out.

F-16	FCC	SANDL
H =	13000.0	ALTITUDE (FT.)
M =	1.55	MACH NO.
$X_{E} =$	7.50	DISTANCE FROM THE LEADING EDGE OF THE
E		FUSELAGE AERODYNAMIC PROFILE (FT.)
$R_{c} =$	3.00	DISTANCE FROM SKIN (IN.)
R <sub>S</sub> = W <sub>E</sub> =	31.20	EQUIPMENT WEIGHT (LBS.)
T =	.0360	THICKNESS OF SKIN MATERIAL (IN.)
$D_{F} =$	40.0	DIAMETER OF FUSELAGE (IN.)
MATERIAL =	ALUMINUM	TYPE SKIN MATERIAL
CATEGORY =	1B	EQUIPMENT MOUNTING CATEGORY

#### 1.3 F-4 (Instr. Panel, non-isolated)

This prediction problem describes the vibration spectrum of the radar altimeter indicator (RAI) located on the left side of the instrument panel, aft cockpit (Figures 14 and 15). The instrument panel is hard mounted (non-isolated). Flight conditions are straight and level (SANDL).

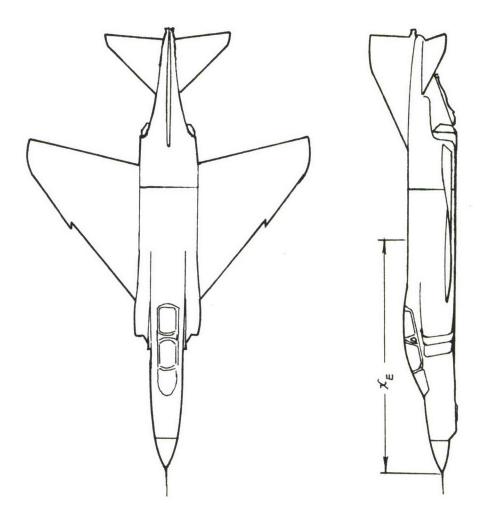


Figure 8. Location of Skin Response, RF-4C

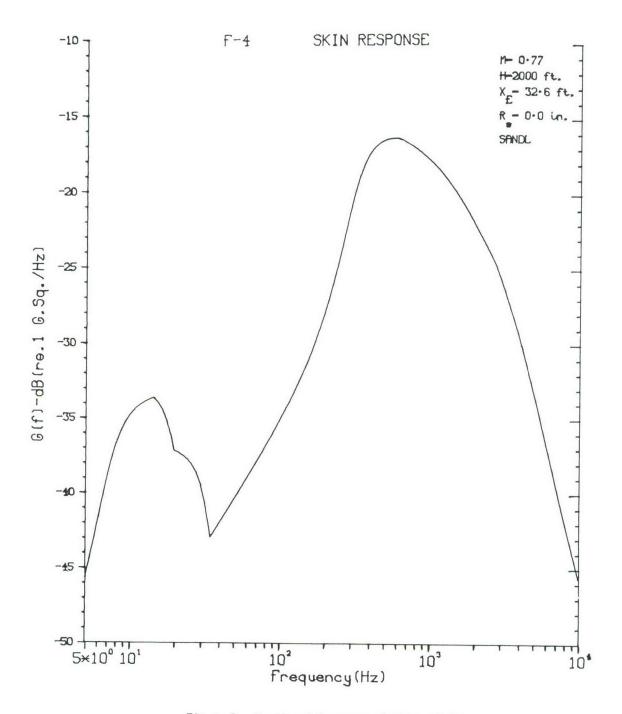


Figure 9. Predicted Response of Skin, RF-4C

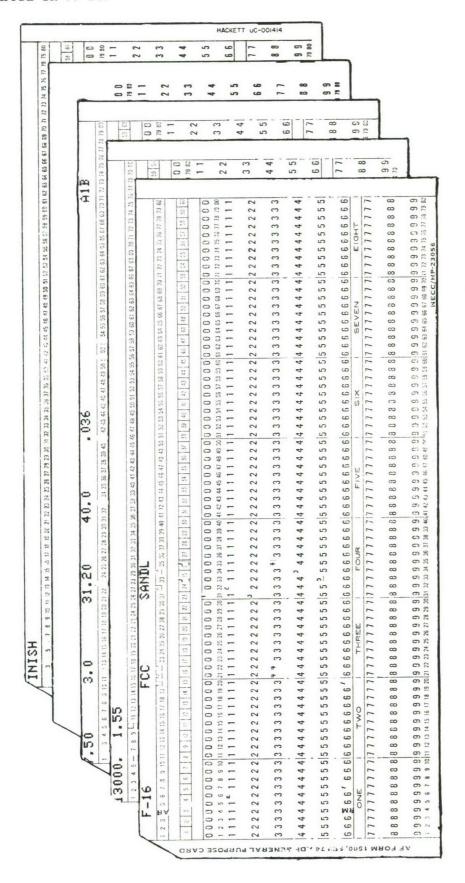


Figure 10. Input Data Cards, FCC, F-16

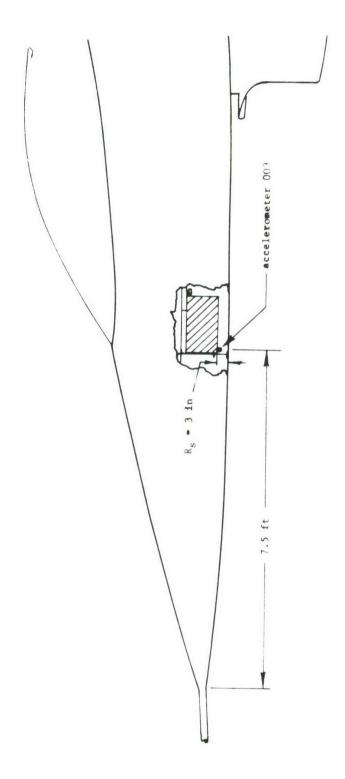


Figure 11. Location of Vibration Input to FCC, F-16

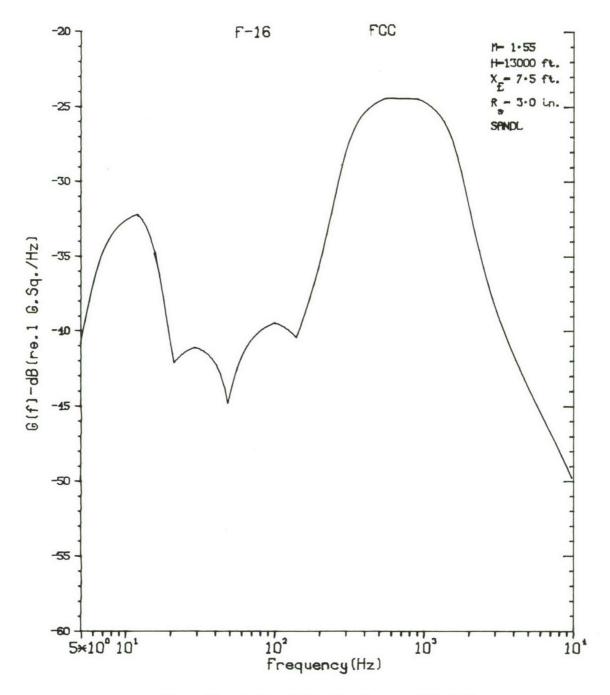


Figure 12. Predicted Vibration Input to FCC, F-16

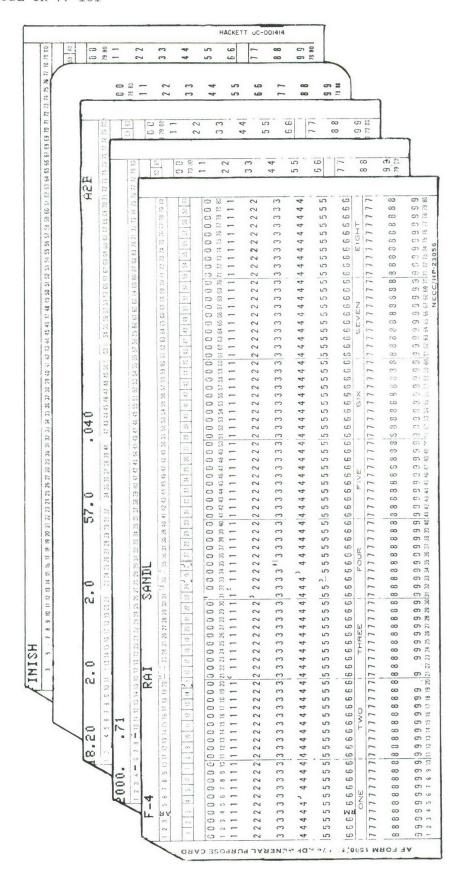


Figure 13. Input Data Cards, RAI, RF-4C

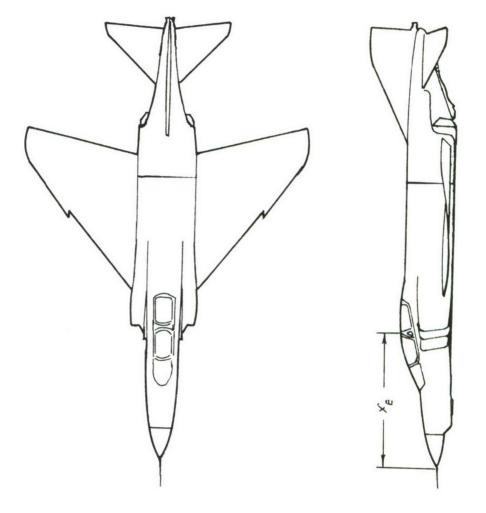


Figure 14. Location of RAI, Aft Instrument Panel, RF-4C

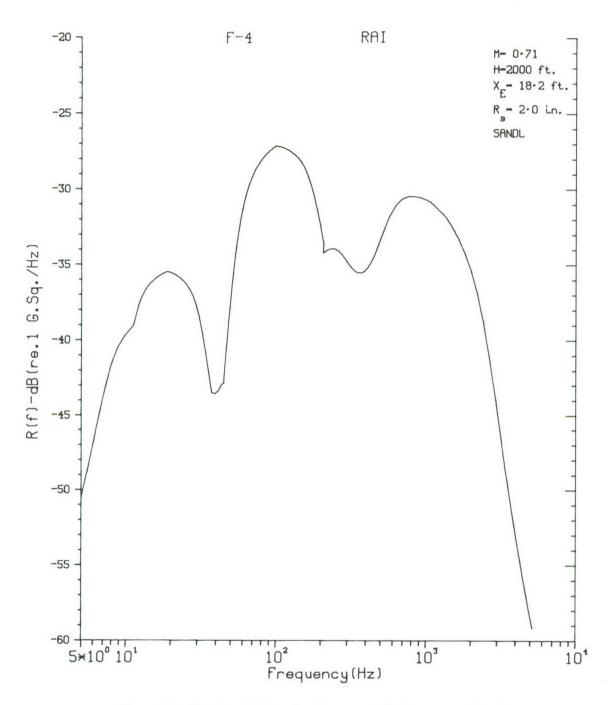


Figure 15. Predicted Vibration Input to RAI, Instrument Panel, Non-Isolated, RF-4C

F-	-4	RAI	SANDL
H	=	2000.0	ALTITUDE (FT.)
M	=	.71	MACH NO.
$X_{E}$	=	18.20	DISTANCE FROM THE LEADING EDGE OF THE
E			FUSELAGE AERODYNAMIC PROFILE (FT.)
$R_{c}$	=	2.00	DISTANCE FROM SKIN (IN.)
w <sub>E</sub>	=	2.00	EQUIPMENT WEIGHT (LBS.)
Ť	=	.0400	THICKNESS OF SKIN MATERIAL (IN.)
MATERIAL	=	ALUMINUM	TYPE SKIN MATERIAL
CATEGORY	=	2B	EQUIPMENT MOUNTING CATEGORY
$D_{\mathbf{F}}$	=	57.0	DIAMETER OF FUSELAGE (IN.)

All hard mounted secondary structures, of which non-isolated instrument panels are a member, involve decision criteria concerning the location of the equipment item along the mode shape of the instrument panel (see para 1.2 of Appendix E and Figure E-6). As it turns out  $\epsilon \geq \lambda/4$ ; so R(f) has been selected, plotted and the results are shown in Figure 15. Note that if the user does not have a suitable estimate for the first bending mode frequency of the panel ( $f_{clib}$ ) then he may refer to the recommended values in Table II, Section III.

#### 1.4 A-7D (Instr. Panel, isolated)

The A-7D features an isolated instrument panel (isolator natural frequency,  $f_{\text{cIIa}}$ , is 45 Hz). This problem involves a Radio Frequency Indicator (RFI) mounted on the instrument panel (Figures 17 and 18). We wish to predict the indicator response during SANDL flight.

The inputs are:

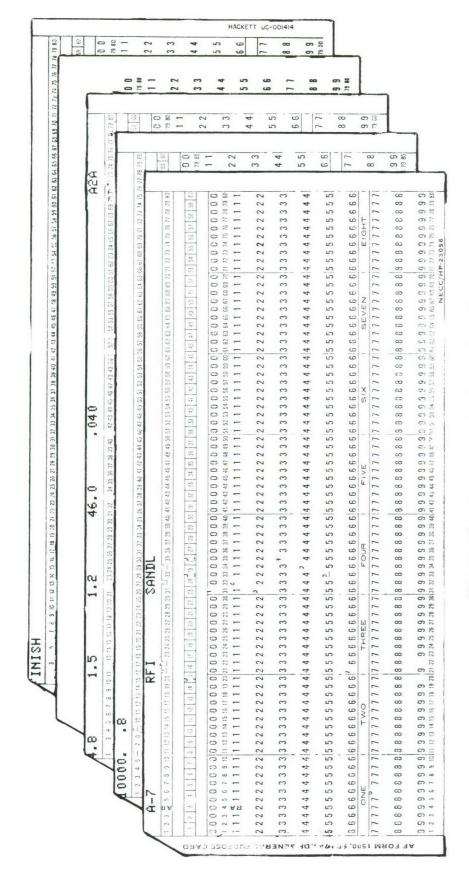


Figure 16. Input Data Cards, RFI, A-7D

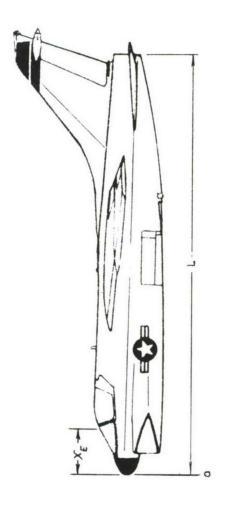


Figure 17. Location of RFI, Instrument Panel, Isolated, A-7D

```
A-7D
                  RFI SANDL
       H =
              10000.0 ALTITUDE (FT.)
      M =
                 .80 MACH NO.
      X_{E} =
                 4.80 DISTANCE FROM THE LEADING EDGE OF THE
                       FUSELAGE AERODYNAMIC PROFILE (FT.)
                 1.50 DISTANCE FROM SKIN (IN.)
                 1.20 EQUIPMENT WEIGHT (LBS.)
                .0400 THICKNESS OF SKIN MATERIAL (IN.)
MATERIAL =
             ALUMINUM TYPE SKIN MATERIAL
CATEGORY =
                   2A EQUIPMENT MOUNTING CATEGORY
                 46.0 DIAMETER OF FUSELAGE (IN.)
      D_{F} =
```

The predicted response of the instrument panel, or the input to the RFI, is shown in Figure 18.

## 1.5 F-15 (Black Box Input, Shock Mounted)

A black box assembly, consisting of the TACAN and the APX-76, is located in the nose region of the F-15 (Figure 20). The assembly is shock mounted. The isolator natural frequency is 25 Hz. We wish to predict the vibration input to the shock mounts for the SANDL case as well as for the buffet turn (BT).

The inputs are:

F-	-15	APX-76	BT
H	=	25000.0	ALTITUDE (FT.)
M	=	.90	MACH NO.
X	=	10.1	DISTANCE FROM THE LEADING EDGE OF THE
٤			FUSELAGE AERODYNAMIC PROFILE (FT.)
Rs	=	5.00	DISTANCE FROM SKIN (IN.)
w <sub>E</sub>	=	54.00	EQUIPMENT WEIGHT (LBS.)
Ť	=	.0400	THICKNESS OF SKIN MATERIAL (IN.)
MATERIAL	=	ALUMINUM	TYPE SKIN MATERIAL
CATEGORY	=	1B	EQUIPMENT MOUNTING CATEGORY
$^{\mathrm{D}}\mathrm{_{F}}$	=	40.0	DIAMETER OF FUSELAGE (IN.)

The entry condition for buffet turn is M=0.90 and H=25,000 ft. Note that the entry condition, or reference straight and level,

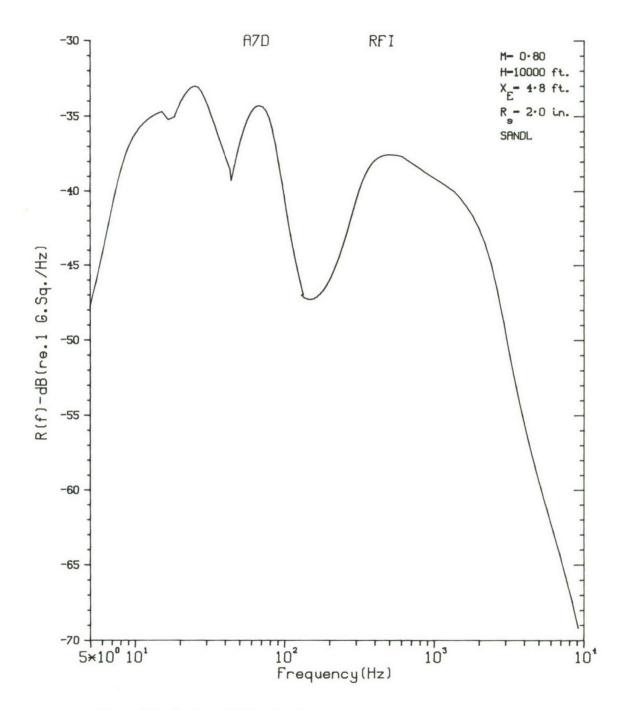


Figure 18. Predicted Vibration Input ot RFI, Instrument Panel, Isolated,  $_{\mbox{\scriptsize A-7D}}$ 

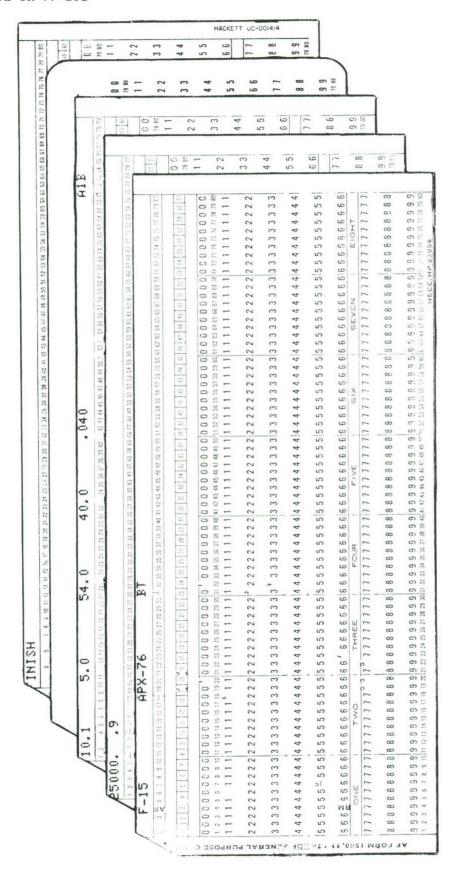


Figure 19. Input Data Cards, APX-76, F-15

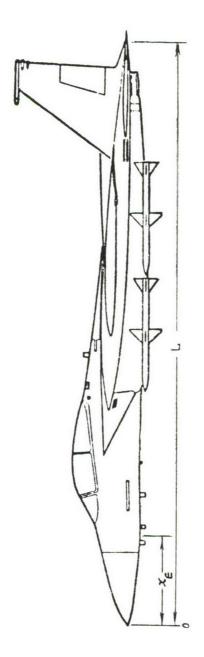


Figure 20. Location of APX-76, Isolated, F-15

is automatically plotted in the program along with the buffet turn curve (see para 3.1.2.1 of Section III). The resultant plots are shown as Figures 21 and 22. The impressive rise of the vibration level in the region of 35 Hz during buffet turn reminds us that severe spectral levels, though brief in duration, can be encountered ... and we add here, that they often go unnoticed by the vibration engineer.

## 1.6 F-15 (Black Box Response, Shock Mounted)

We repeat para 1.5, except now we wish to predict the response of the assembly mounted on the isolator. If we change category I(b) to I(a) and enter the isolator natural frequency as  $f_{cIa}$ =25Hz, we may then add the remaining inputs of para 1.5 to complete the program (Figure 23). The equipment response for entry (reference) SANDL and, finally, for BT is shown as Figures 24 and 25. Here, we see the equipment response — an excitation magnified significantly by the isolator transfer function.

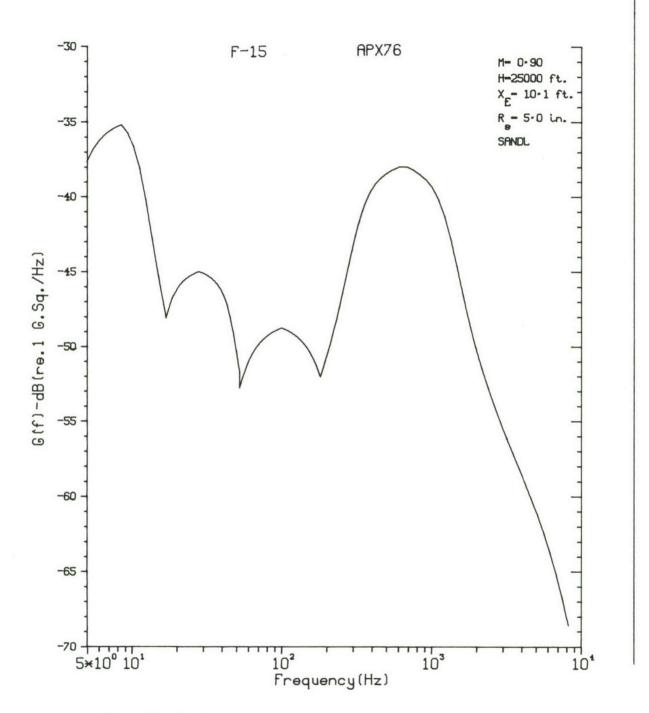


Figure 21. Predicted Input to APX-76, Isolated, F-15, for SANDL Flight

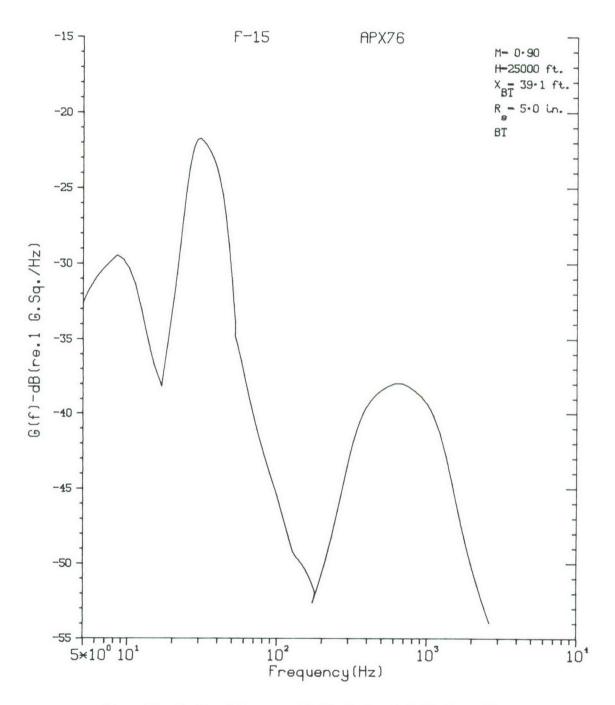


Figure 22. Predicted Input to APX-76, Isolated, F-15, for Buffet Turn

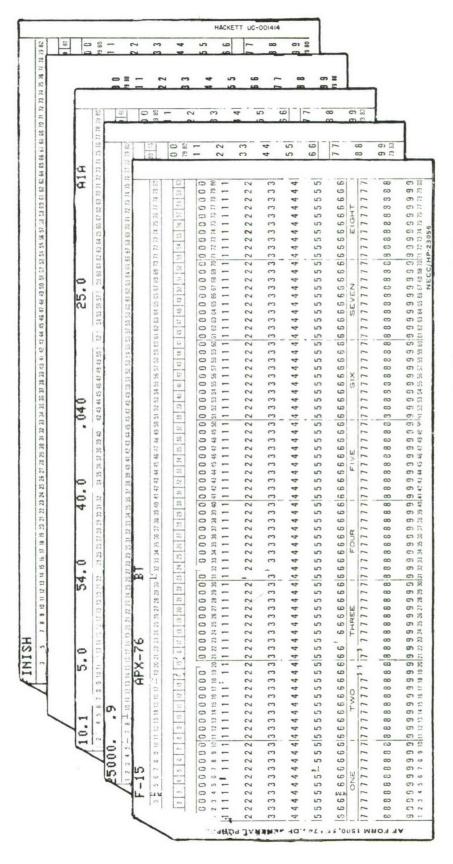


Figure 23. Input Data Cards, APX-76 Response, F-1

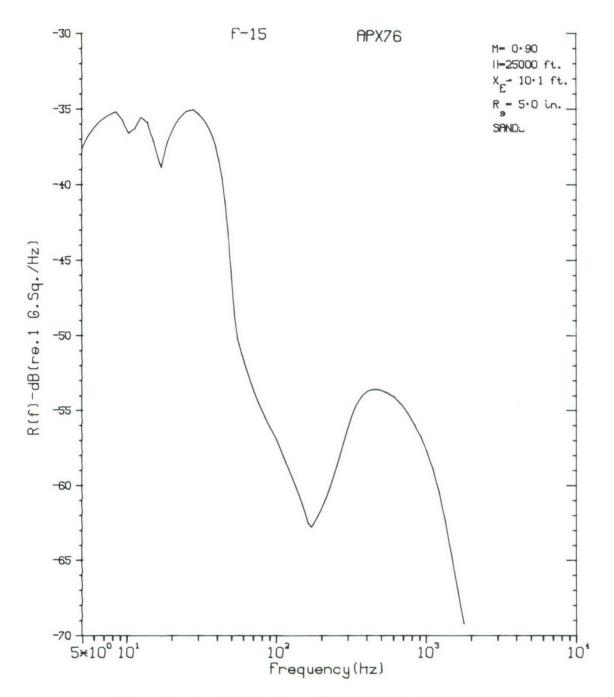


Figure 24. Predicted Response of APX-76, F-15, for SANDL Flight

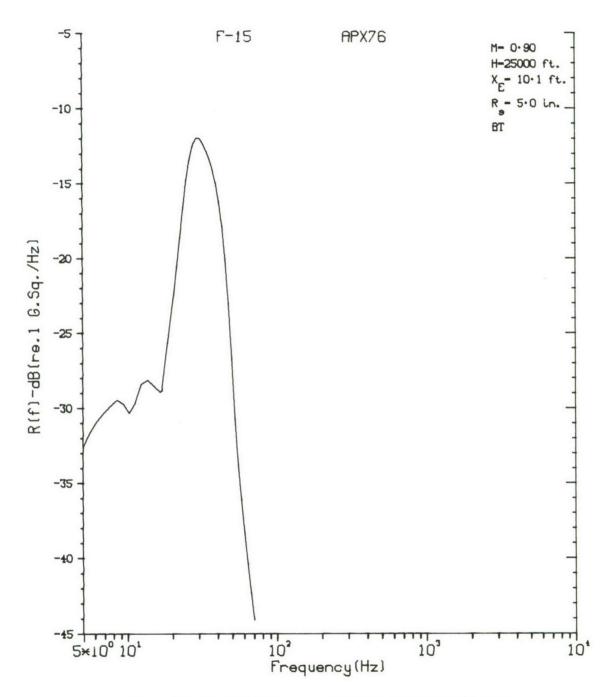


Figure 25. Predicted Response of APX-76, F-15 for Buffet Turn

#### SECTION V

#### REVIEW

#### 1.0 Discussion

This work concludes with a discussion that briefly reviews the general philosophy of the prediction method, summarizes results thus far obtained, underlines some remnant problem areas or shortcomings, and finally, terminates with recommendations for future studies.

Sections II and III show that, in the main, this prediction method employs the cross product of input and transfer functions both of which are utilized as variants of a basic equation whose curve is fundamentally sigmoidal in form and plastic in temperament. Indeed, in this approach to vibration prediction, functions of a consummate virtuosity are all but mandatory — and thus far, the flex function, thought often distended in the application, has yet to be breached in the trial. It will remain for future applications (probably involving other special flight conditions and physical configurations) to determine the ultimate limits of its adaptability; in the meantime, it seems to be working reasonably well.

But this prediction approach is not solely preoccupied with the manipulation of an abstruse function. The process is also shaped and otherwise supplemented with large doses of empiricism, chiefly in the form of vibration data which is looped back into the various functions (most notably, the special functions) to provide corrective

information resulting in readjustments of the function parameters. In general, the more relevant, the more detailed, and the more perceptive the data choice; the more accurate the results. We go further: the more details that are known about the aircraft skin, of the equipment mounting method, of the equipment size, shape, function and weight, of the class of the equipment support structure used, of the equipment proximity to special and significant physical configurations (guns, flaps, speed brakes, landing gear, refueling doors, cavities) — the more that is known of these specifics, the more readily transfer and special functions can be shaped, sized, and integrated into the prediction format to further the advance of a more realistic prediction end.

With these guidelines in mind, it is useful to review some deficient areas of the vibration data process and reflect on its consequences concerning the results of this prediction technique.

## 1.1 Instrument Panels

Extant vibration data covering instrument panels is relatively scarce, especially data from pickups that measure the inputoutput properties of the panel or data from response pickups that are
located in the central one-third of the panel (central one-third of
the half panel, if the panel is tied down at the center). Data indicating the panel weight, the mounting method (isolated or non-isolated) and the isolation frequency, if isolated, is nearly always
unspecified and must be ascertained separately — often at considerable
difficulty. From these observations, it is easy to deduce that the

instrument panel transfer functions for the isolated and nonisolated case (Categories IIa and IIb) will, in all probability, be
adjusted as additional suitable data becomes available. Finally,
it is worth noting that instrument panel vibration, because of the
severe levels, should be recorded, wherever possible, during violent
flight phases such as buffet turn; especially for those aircraft
whose cockpits are located near to, or over the wing areas.

#### 1.2 Skin

Pickups on the skin are, sometimes, not skin mounted -being mounted on adjacent frames, for example, and if they are placed at the central panel area, they are often of a size (mass) to roll off the high frequencies and so one must apply adjustments to the data in order to derive the transfer function (see Ref. 8). Despite these problems, the skin transfer function derived and used for this prediction process seems to be reasonably accurate for curved aluminum skin surfaces, forty thousandths of an inch thick. Suitable measurements on other type aircraft surfaces (including the wings) should be obtained, however, and much useful transfer function information can be developed for surfaces of greater thicknesses, and for that matter, surfaces of different geometry and composition. Boundary layer microphones remain a problem. They are usually massy; and, if anything, they (rather than accelerometers) are the ones to be moved over near the frame to reduce mass loading. Boundary layer microphone data are rarely accompanied with information indicating whether or not the data has been corrected for the boundary layer thickness and

the microphone effective diameter. The diameter is almost never indicated; but it should be. Sufficient spatial information (fuselage station, for example) should always be included with the microphone data in order that the down stream distance can be determined.

#### 1.3 Buffet Turn

Vibration data covering the buffet turn (BT) maneuver is also rather hard to come by, thus the special function [S(f)] derived for the BT maneuver should be viewed as tentative; subject to future adjustments, if and when new data indicates. The general spectral characteristics occasioned by this maneuver, it is interesting to note, are similar to those generated during pullups; and if we are careful not to push the comparison too far, they are rather similar to such flight phases as lowered speed brakes, flaps, landing gears, and for that matter, open refueling doors and cavities. Processed data and extant vibration records should be sought and examined whenever opportunities arise to obtain valuable parametric information about these flight phases. Because quite apart from their being valuable contributions to the prediction process, the sudden bloom of their spectral peaks (as much as 25 dB!) provides instructive warning to equipment vibration and reliability engineers that straight and level vibration is only a part of the environmental history.

## 1.4 Forward Looking Radar Zones

The high frequency vibration fields of forward looking radar zones tends to be appreciably higher than the norm. The reasons for this seem to be due to the relatively empty air space

provided by the radome in combination with the low internal damping of the radome cover. Without the mass loading and lossy damping attenuations provided by the usual dense equipment packaging, this area, not surprisingly, will exhibit vibration levels (above 150 Hz) in excess of 6 to 10 dB above that of predicted levels. Because of this,  $H_{M}(f)$  and  $M_{M}(f)$  have been adjusted (in the program) to cover applications for equipment attached to forward looking radar bulkheads. Future additional data may indicate that further adjustments and improvements are desirable.

#### 1.5 Sinusoidals

Sinusoidal-like vibration is present in various regions of the aircraft. It is found in the presence of blowers, pumps, generators, refrigeration units; and, most conspicuously, it is seen as one approaches the engine compartments. Here the vibration content may be fairly described as consisting of predominant sinusoids, superposed on a subordinate, random background. There is no provision in this method for this class of vibration; there should be.

# 1.6 Determining R<sub>s</sub>

Normally, if the equipment is located on primary structure, R<sub>S</sub> is chosen as the nearest distance from the aircraft skin to the equipment attachment point. Although this criteria may be modified as the method is applied more and more, the interpretation stated appears to be reasonably workable. However, its application to equipments attached to shelves and beams (secondary structure) is not so certain. At present, the author has chosen the nearest distance from the skin to the place (point) where the member attaches to the primary structure.

This criteria, too, could change in the future if repeated applications suggest.

### 1.7 Future Work Areas

The prediction method and its associated computer program may be readily extended to cover vehicle locations and in-service operations not covered in this report. The following flight conditions and configurations are considered to be sufficiently important from the vibration viewpoint to warrant future considerations, and are listed for review.

- a. Speed brakes, pullups, flaps, landing gears, and open refueling door operations.
  - b. Gunfire.
  - c. Vertical fin vibration prediction.
- d. Wing locations; including missiles and their launchers.
  - e. Cavities (ports and open weapons bay).
  - f. Stores and pylons.

#### APPENDIX A

#### AERODYNAMIC PROPERTIES

## 1.0 Equations

The properties of P(f) are determined from the following equations and procedures:

$$P_{\rm m}(f) = \frac{(.007)^2 q^2 \delta_{\rm b}}{(1+.14M^2)^2 U}$$
 (A-1)

$$f_o = .61 \text{ U/}\delta_b \tag{A-2}$$

$$\delta_{\mathbf{b}} = \delta_{\mathbf{0}} (\rho/\rho_{\mathbf{0}}) \tag{A-3}$$

$$\delta_{\rm o} = 0.37 \text{xRe}_{\rm x}^{-1/5} \left[ 1 + \left( \frac{\text{Re}_{\rm x}}{6.9 \times 10^7} \right)^2 \right]^{1/10}$$
(A-4)

where:

 $P_{m}(f) = max value of P(f) (PSF<sup>2</sup>/Hz)$ 

q = dynamic pressure,  $\rho U^2/_2$  (PSF)

 $\delta_b$  = boundary layer thickness (ft)

M = Mach number

U = free stream velocity (ft/sec)

 $f_0$  = characteristic, or locator frequency of the flex function at the 6 dB down point (Hz)

 $\delta_{_{\scriptsize O}}$  = boundary layer thickness at zero altitude (ft)

 $\rho$  = mean density of air at flight altitude (slug/ft<sup>3</sup>)

 $\rho_0$  = mean density of air at zero altitude (slug/ft<sup>3</sup>)

x = distance downstream from the leading edge of the aerodynamic profile to the equipment location (ft)

 $Re_{x} = U x/v = Reynolds number at distance x$  $v = kinematic viscosity (ft^{2}/sec)$ 

With the mach number and altitude given for straight and level flight (SANDL) the boundary layer parameters  $P_m(f)$  and  $f_0$  are then determined. A graph (Figure A-1) is used to obtain  $\beta'$ . These three parameters, assigned to the flex function of Figure 6 of the main text, completely defines P(f). To obtain P(f), in dB, refer to the graph shown in Figure A-2. A typical example of a boundary layer pressure spectral density curve (P(f) as a function of frequency) is shown in Figure A-3.

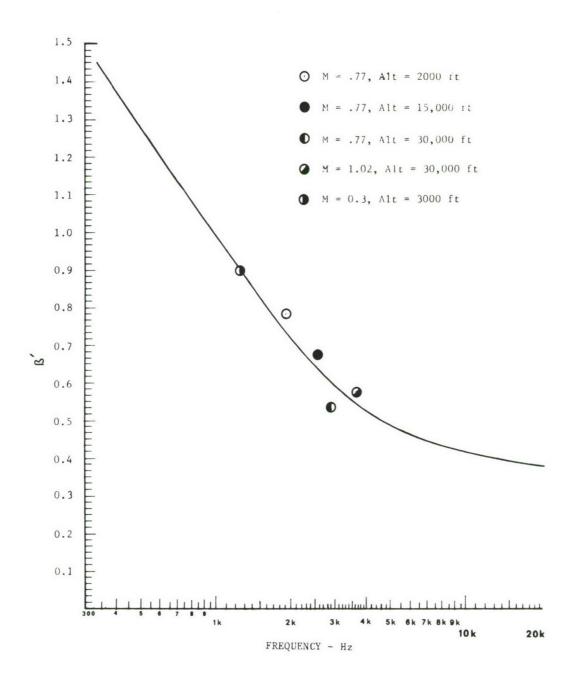
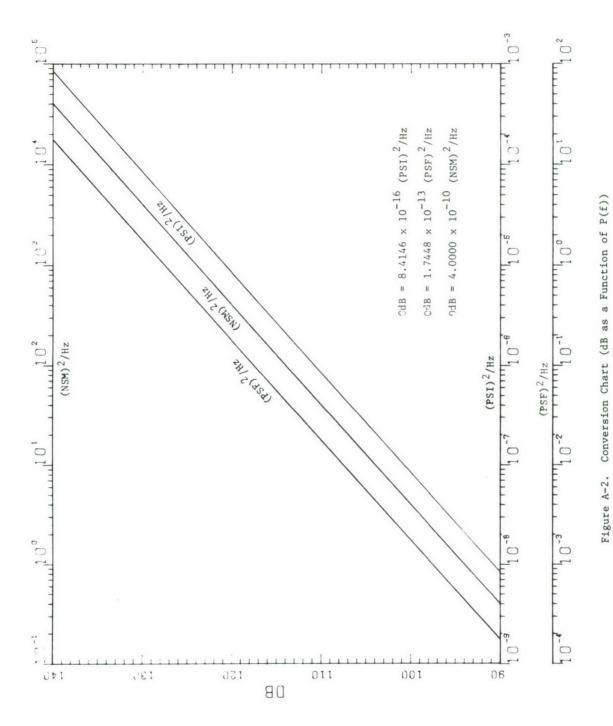


Figure A-1. The slope Factor,  $\beta^{\, {}^{\prime}}$  , as a Function of  $f_{\phantom{0}}$ 



74

# PREDICTED PRESSURE SPECTRAL DENSITY-P(f)

F-4 NAV.COMP.+SIG.CONV.

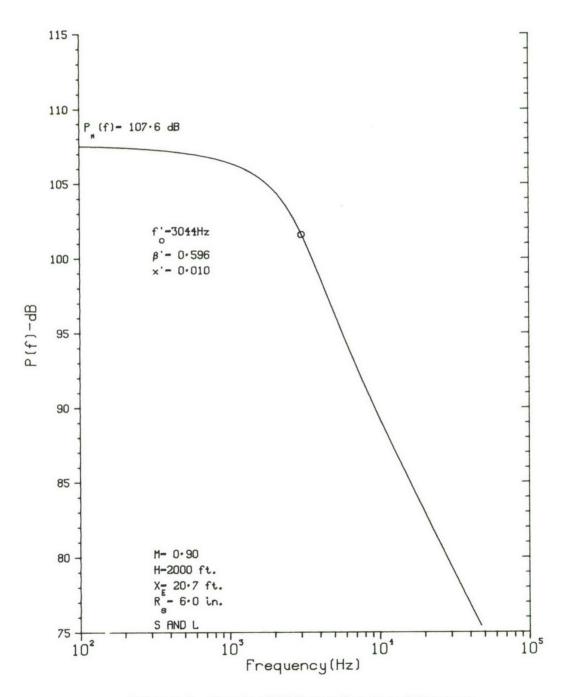


Figure A-3. Example of P(f) as a Function of Frequency

#### APPENDIX B

### AIRCRAFT MODE SHAPES (FUSELAGE)

## 1.0 Terminology

The fuselage bending mode shapes are identified by the following symbolism:  $f_n$  = mode frequency (Hz)

 $\emptyset_{n}(x)$  = normalized mode shape

FBBVS = first body bending, vertical, symmetric

SBBVS = second body bending, vertical, symmetric

x = aerodynamic distance downstream (inches)

L = maximum value of x (inches)

F.S. = aircraft fuselage station (inches)

### 2.0 Modal Shapes

Each deflection curve has been squared and normalized at the forward fuselage location corresponding to x=0. For some aircraft, x is approximately the same as the fuselage station; for others, it is not. Immediately following the two graphs of the first and second bending modes is a sideview of each aircraft that identifies the x and x parameters. Also included is a notation relating the x=0 coordinate to that of the aircraft fuselage station.

### 3.0 Derivation of Modal Properties

For fighter aircraft types not included in this Appendix, it will be necessary, as stated in Section III, to obtain the required modal properties and enter them into the program deck before the

prediction scheme can be utilized. The required modal shapes and frequencies are usually obtained from data abstracted from the aircraft ground vibration test report (GVT Report). The determination of  $L_{\underline{M}}(f)$  requires other strategems. In the absence of vibration data,  $L_{\underline{M}}(f)$  must be estimated. The procedure for this step is found in Reference 8 and is here repeated.

$$L_{M}(f) = A +20 \log (L/B) +40 \log (f_{N}/C)$$
 (B-1) where:

 $L_{M}(f)$  = property to be determined

 $A = L_{M}(f)$  for a known, similar fighter (dB)

L = length of the new aircraft (inches)

B = length of a known, similar aircraft (inches)

 $f_{p}$  = frequency, FBBVS, of the new aircraft (Hz)

C = frequency, FBBVS, of a known, similar aircraft (Hz)

The maximum value of the low frequency transfer function,  $L_2(f)_M$ , may be estimated using the following relationship.

$$L_2(f)_M = L_M(f) - 6$$
 (B-2)

where adequate vibration data is available more desirable results may be achieved by noting G(f) (during SANDL flight) and, through the use of equation 14 (Section II), solving for  $L_{\underline{M}}(f)$ .

$$P(f) \left[\phi_{n}(x)L_{M}(f)\right] = G(f)$$
and,
$$L_{M}(f) = \frac{G(f)}{P(f)\phi_{n}(x)}$$
(B-3)

Note that this procedure requires that the first bending mode shape be determined. Also, best results are obtained if one selects G(f) proximate to x=0 where the mode response is large and usually conspicuous.  $L_2(f)_M$  may be determined by the response of the second bending mode G(f), relative to the first bending mode value.

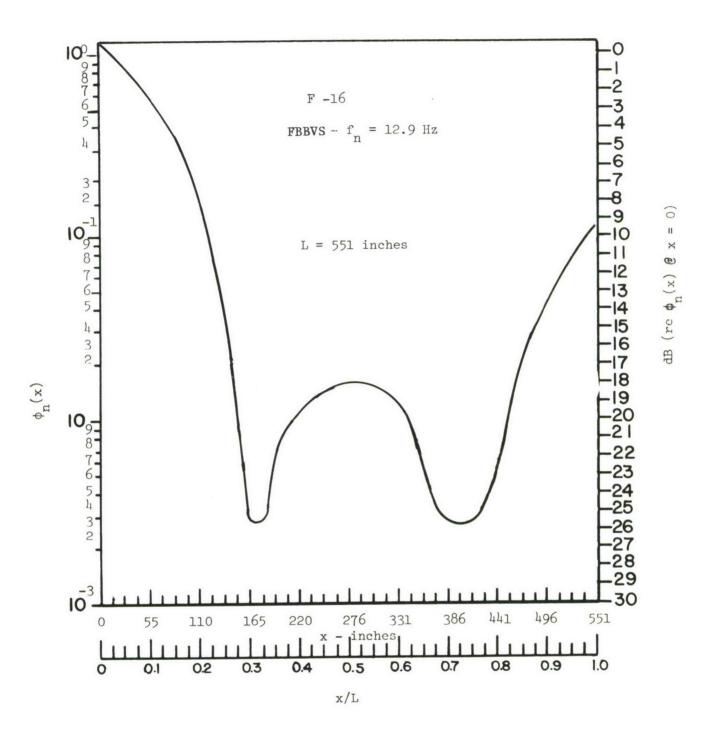


Figure B-1. Mode Shape (FBBVS) of the F-16

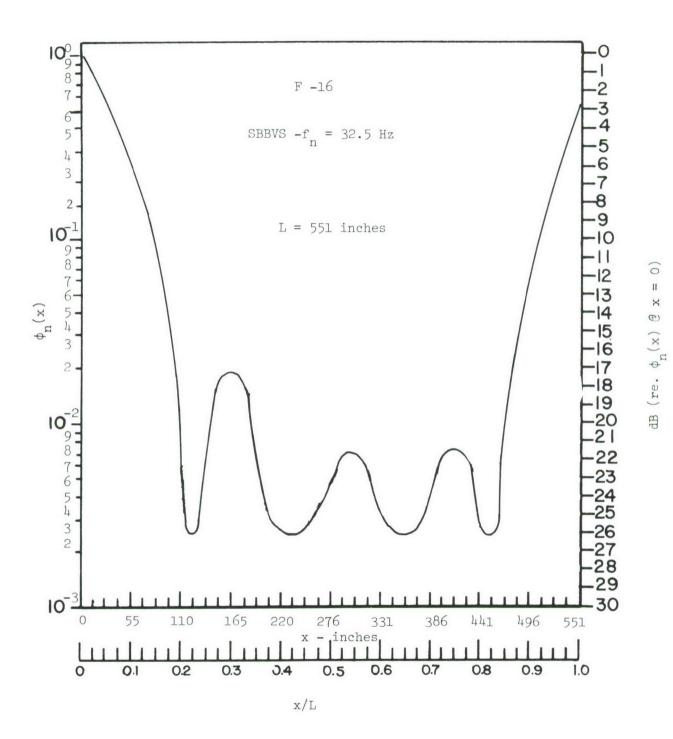
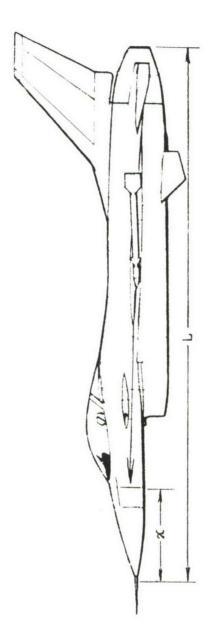


Figure B-2. Mode Shape (SBBVS) of the F-16



Note: x=0 is equivalent to F.S. = 0 inches

Figure B-3. F-16 Aircraft Showing the x and L Parameters

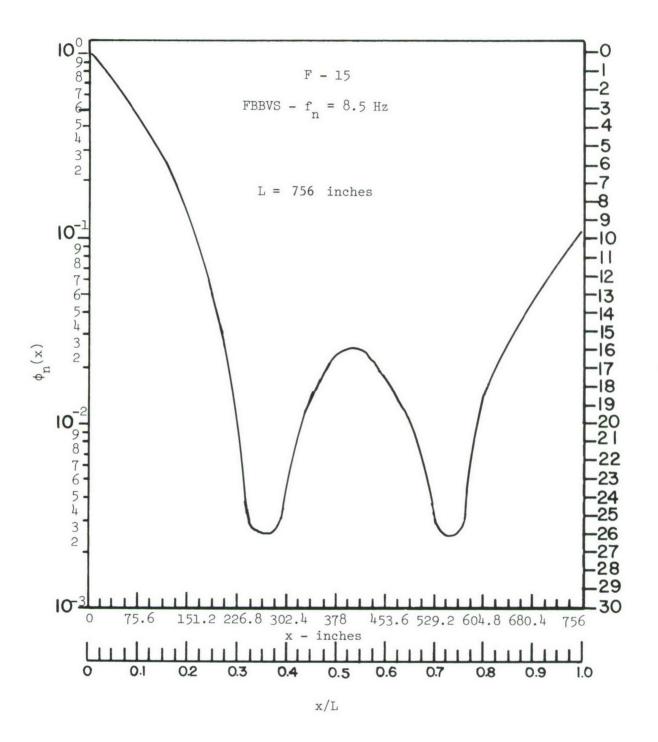


Figure B-4. Mode Shape (FBBVS) of the F-15

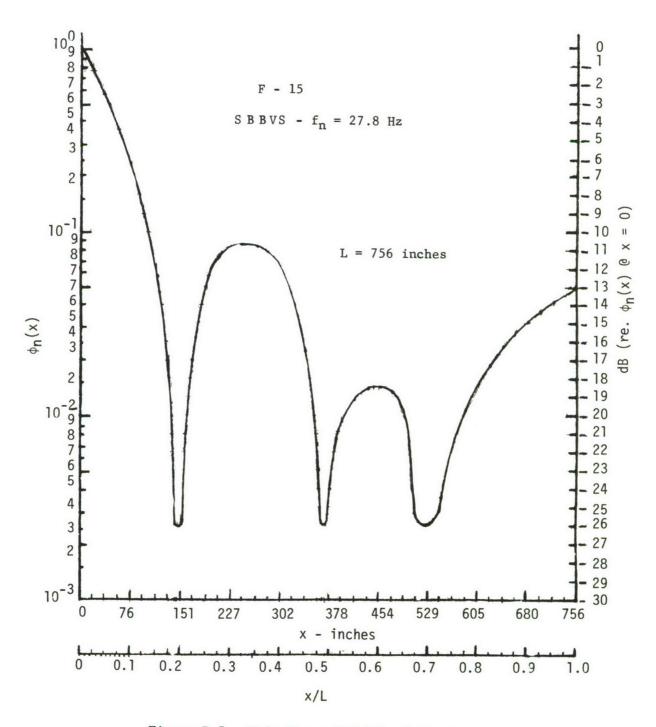
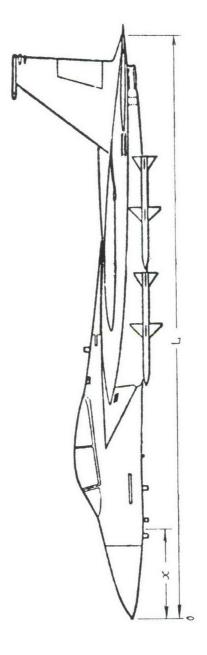


Figure B-5. Mode Shape (SBBVS) of the F-15



Note: x=0 is equivalent to F.S. = 116 inches

Figure B-6. F-15 Aircraft Showing the x and L Parameters

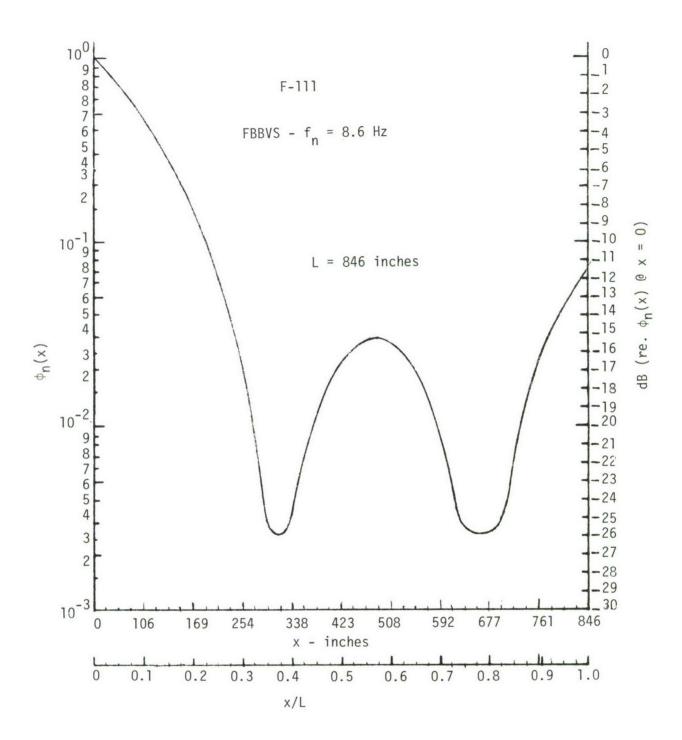
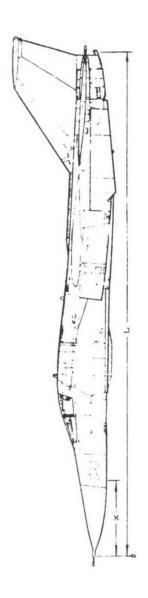


Figure B-7. Mode Shape (FBBVS) of the F-111



Note: x=0 is equivalent to F.S. = 0 inches

Figure B-8. F-111 Aircraft Showing the x and L Parameters

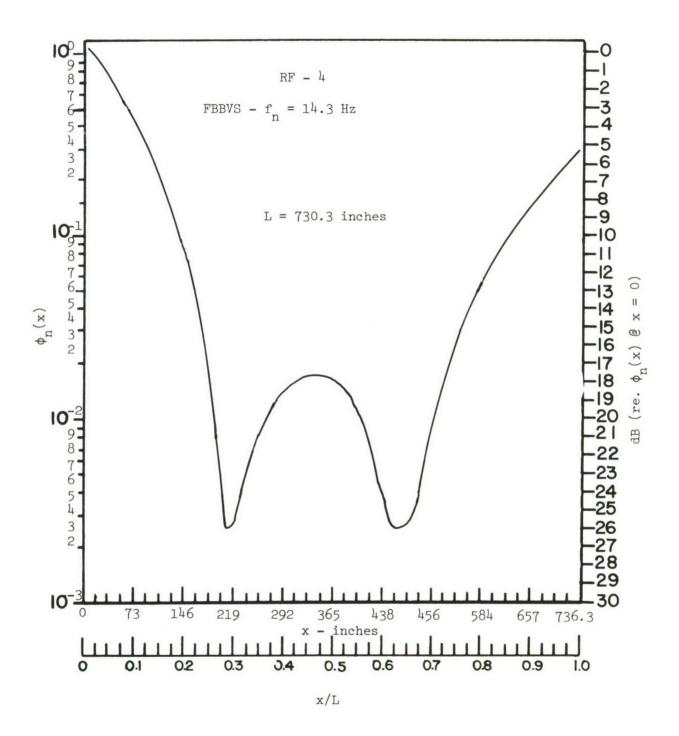


Figure B-9. Mode Shape (FBBVS) of the RF-4C

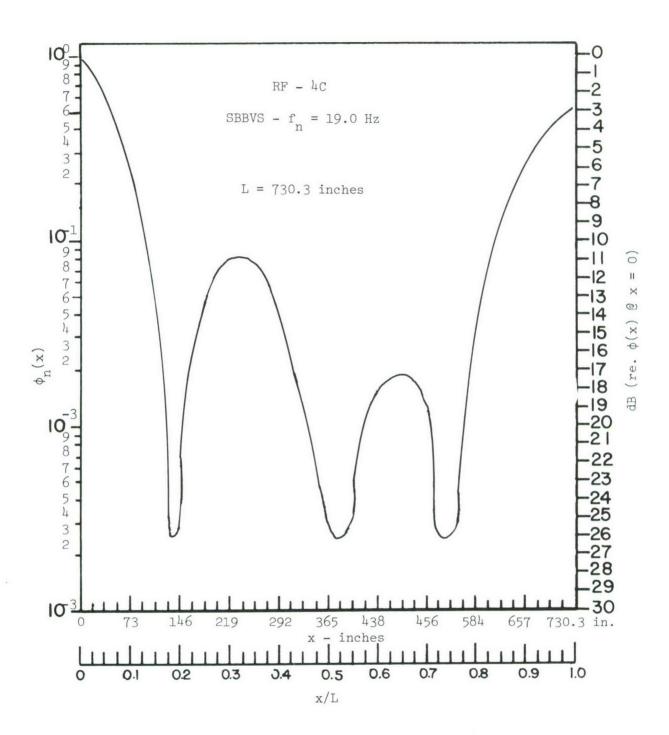
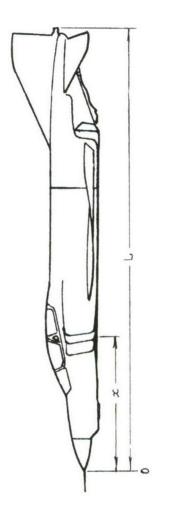


Figure B-10. Mode Shape (SBBVS) of the RF-4C



Note: x=0 is equivalent to F.S. = -59 inches

Figure B-11. RF-4C Aircraft Showing the x and L Parameters

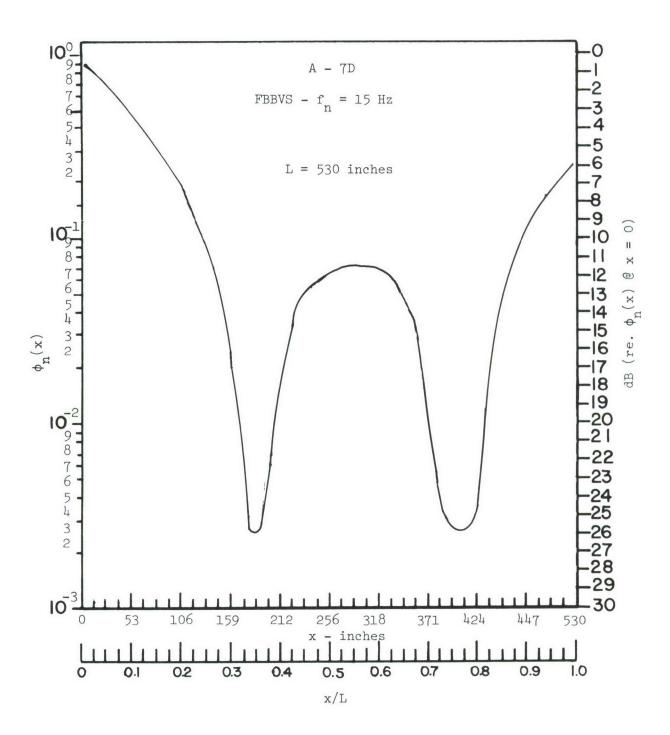


Figure B-12. Mode Shape (FBBVS) of the A-7D

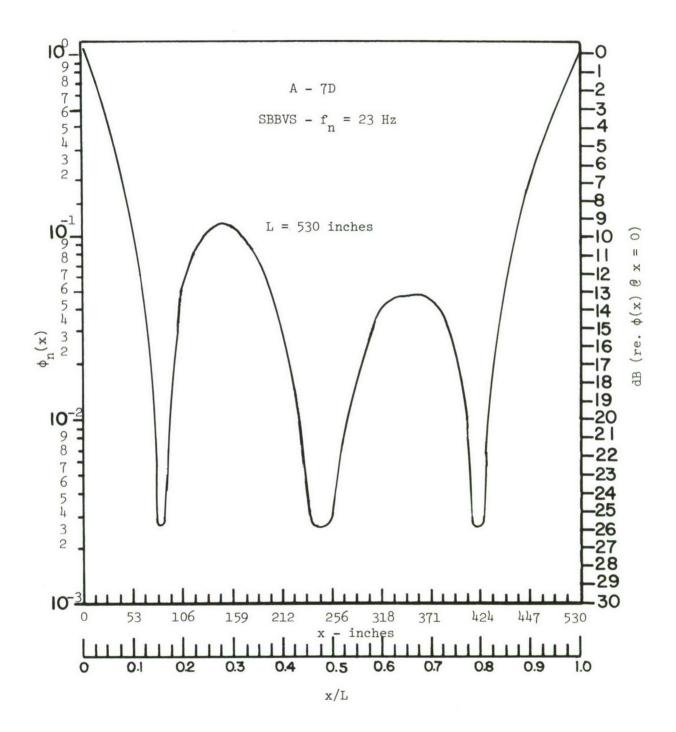
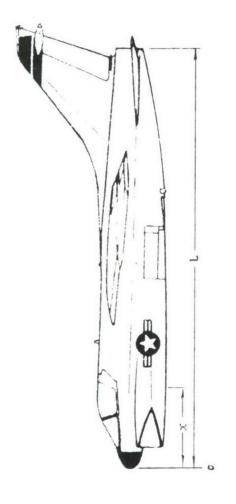


Figure B-13. Mode Shape (SBBVS) of the A-7D



Note: x=0 is equivalent to F.S. = 182 inches

Figure B-14. A-7D Aircraft Showing the x and L Parameters

#### APPENDIX C

## TRANSFER FUNCTIONS --LOW, MEDIUM, AND HIGH FREQUENCY

The following comments offer supplementary information to that contained in the parameter blocks of the three transfer functions. Most of the topics discussed have to do with operations that are either stored or computationally integrated into the computer program format.

## 1.0 Low Frequency Transfer Function, L(f)

Note that when the second mode is specified the first bending mode transfer function changes as follows: x' becomes 0.7,  $\beta'$  is changed to 0.23 and  $f_0$  assumes  $1.54f_n$ . The second bending mode transfer function  $L_2(f)_M$  assumes the following parameters:

$$f_o = f_{2n}/1.8$$
  $f_o = 1.8 f_{2n}$   
 $\beta = 0.2$   $\beta' = 0.2$   
 $x = 1.8$   $x' = 0.555$   
 $\alpha = 1.0$   $\alpha' = 1.8$ 

## 2.0 Medium Frequency Transfer Function, M(f)

The maximum value of M(f), which is  $M_m(f)$ , is reduced by  $\Delta M_m(f)$  as  $R_s$  approaches the skin; that is, as  $R_s$  approaches zero. This feature, stored in the program, reflects the fact that as the equipment location moves outwardly toward the region near the skin the medium frequency vibration content begins to drop out.

Some fighter aircraft feature large internal panels, the nose avionics bay of the F-111 for example; and to allow for this spectral downshift, L(f) is translated down frequency by approximately 50 Hz.

## 3.0 High Frequency Transfer Function, H(f)

Figure C-3(b), among other things, shows that, contrary to the behavior of  $M_m(f)$ ,  $H_m(f)$  increases as the aircraft skin is approached.

4.0 Special Parametric Relationships

The first and second bending modes exhibit a peaked characteristic at their mode frequencies. Whenever this happens, that is, whenever the low and high frequency rolloff segment of the flex function peak at the same frequency, say  $f_n$ , then  $f_0$  and  $f_0$  may be defined in terms of  $f_n$ . This statement is best demonstrated by use of the following sylloge.

Always, 
$$xf_0 = f_x$$
 and  $x'f_0 = f_{x'}$   
where:  $f_x =$ the frequency at  $x$   
and:  $f_x =$ the frequency at  $x'$   
Thus,  $x = f_x/f_0$  and  $x' = f_x/f_0$ 

Now, for the peaking case in which  $f_x = f_n = f_{\chi}$ , it follows that

$$xf_0 = f_n = x'f_0$$

And so, 
$$f_0 = f_n/x$$
 and  $f_0' = f_n/x'$ 

As observed earlier, the peaking form of the flex function appears for bending mode applications; it also appears in the description of the medium frequency transfer function, M(f) -- only to reappear once again as the limiting case for  $H_{\rm m}$  (f) when  $R_{\rm s}$  and  $W_{\rm E}$  are assigned large values.

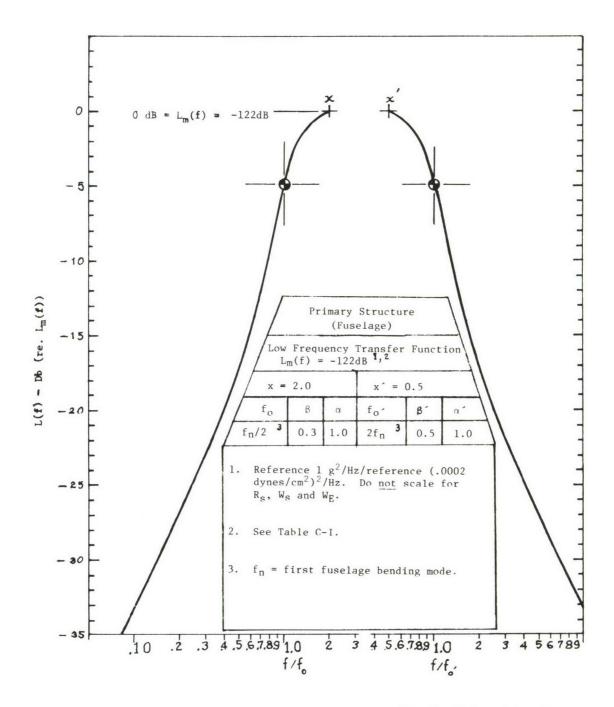


Figure C-1. Low Frequency Transfer Function, L(f), for Fighter Aircraft Fuselage

TABLE C-1

PARAMETRIC VALUES FOR FIRST AND SECOND BENDING MODES\*

(AIRCRAFT FUSELAGE)

First Bending Mode

Aircraft Type	L <sub>m</sub> (f) <sub>1</sub> (dB)	f <sub>n</sub> (Hz)
RF-4C	-122	14.3
F-16	-131	12.9
F-111	-134	8.5
A-7D	-129	15.2
F-15	-127	8.5

# Second Bending Mode

Aircraft Type	L <sub>m</sub> (f) <sub>2</sub> _(dB)	f <sub>2n</sub> (Hz)
RF-4C	-129	19.0
F-16	-133	32.5
F-111		
A-7D	-140	23.0
F-15	-131	27.8

<sup>\*</sup>See Appendix B

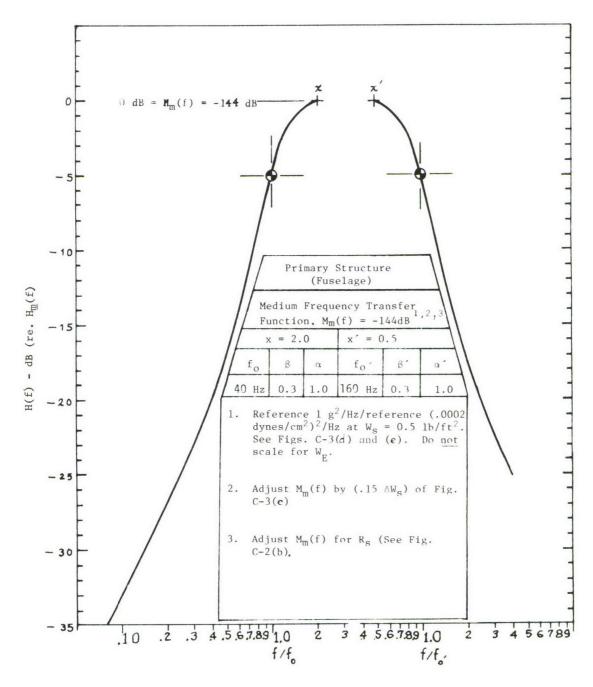


Figure C-2a. Medium Frequency Transfer Function, M(f), for Fighter Aircraft

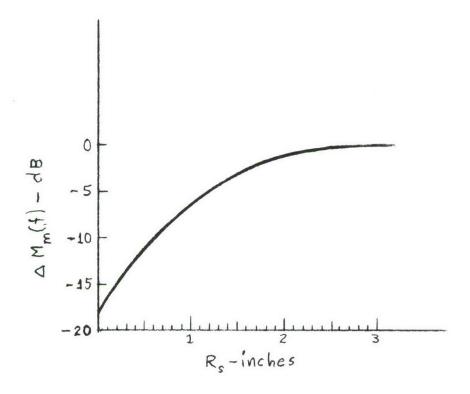


Figure C-2b. Attenuation of  ${\rm M}_{\rm m}$  (f) as a Function of  ${\rm R}_{\rm S}$ 

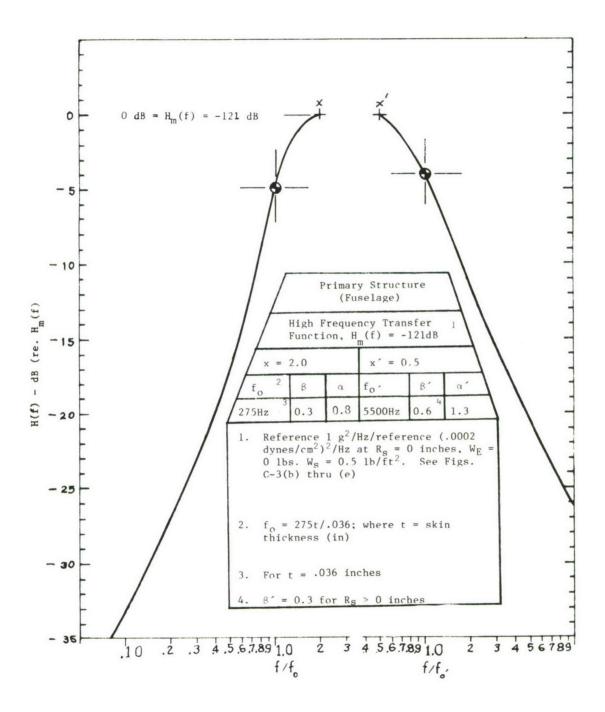


Figure C-3a. High Frequency Transfer Function, H(f), for Fighter Aircraft

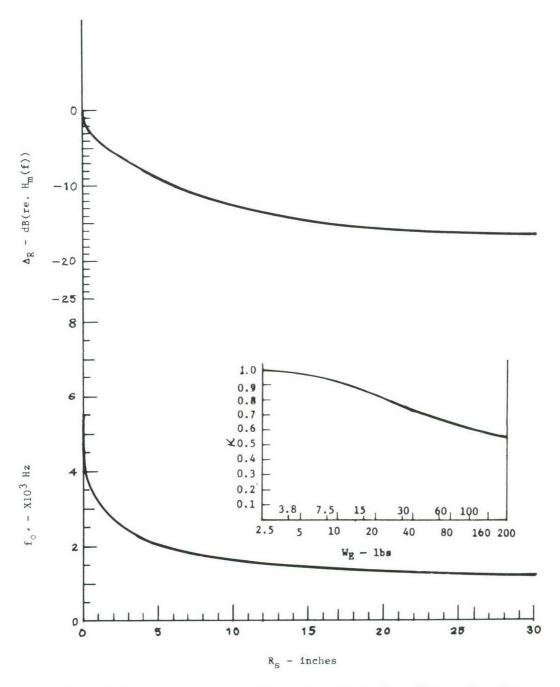


Figure C-3b. Frequency and Amplitude Attenuation of  $\rm H_{m}$  (f) as a Function of  $\rm R_{S}$ 

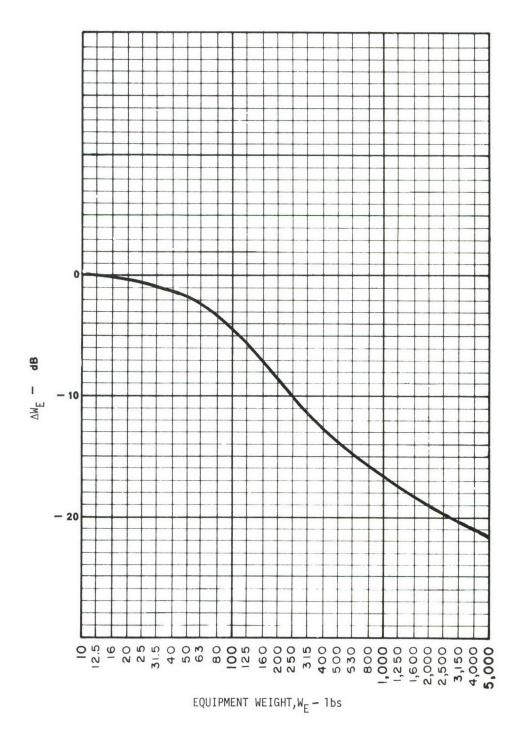


Figure C-3c. Attenuation of  $\mathbf{H}_{\mathbf{m}}(\mathbf{f})$  as a Function of Equipment Weight

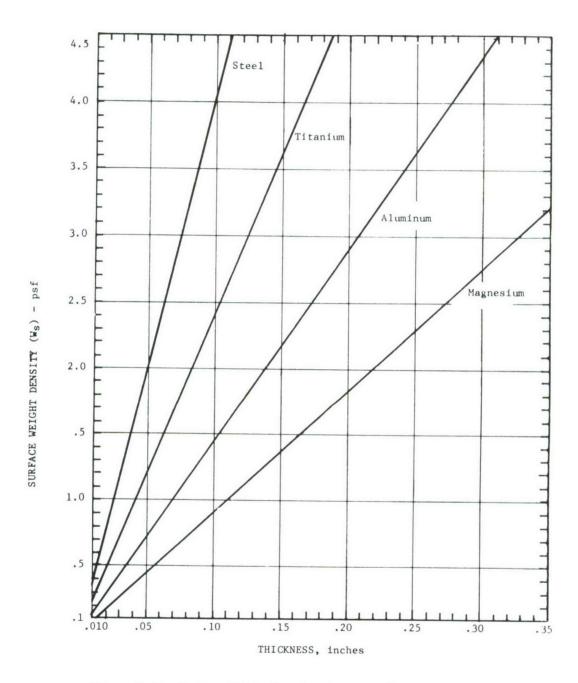


Figure C-3d. Surface Weight Density for Aircraft Materials and Their Thicknesses

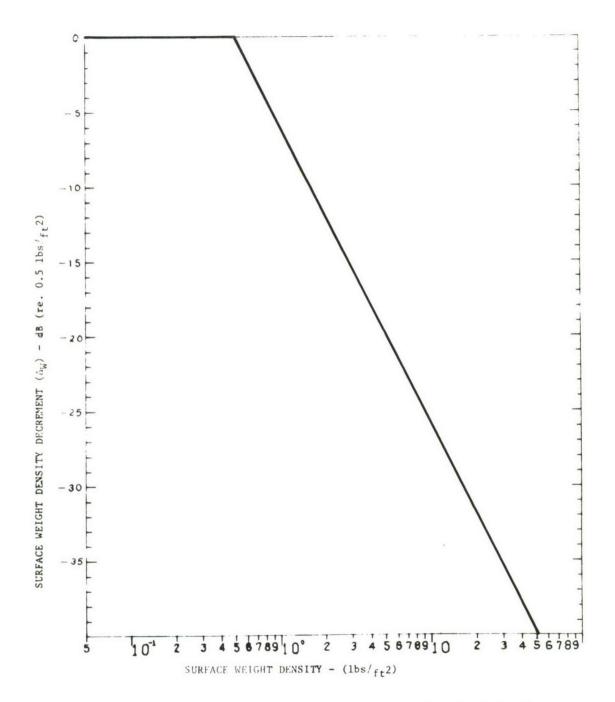


Figure C-3e. Attenuation of  $\mathbf{H}_{\mathbf{m}}(\mathbf{f})$  as a Function Surface Weight Density

#### APPENDIX D

#### SPECIAL FUNCTIONS

The purpose of the special functions is to provide an appropriate function which, after having operated on P(f), results in a specific input to the transfer function elements that, in turn, predict the vibration input spectra of aircraft equipments during flight conditions that deviate from the smooth, straight and level norm. Such flight phases as buffet turn, pullups, takeoff, landing, rough air turbulence, proximity to open speed brakes (flaps), refueling doors, chin effects, including open weapons bay cavitations—all of these conditions invoke special functions, a limited number of which are described in Figures D-2 through D-4.

#### 1.0 Available Functions

Four functions presently incorporated into this Appendix describe the following flight phases: buffet turn (BT), takeoff (T), landing (L), low frequency atmospheric turbulence (TB). Several of the special functions involve a series of distance parameters listed in Table D-1 and illustrated in Figure D-1.

#### 1.1 Buffet Turn

This excitation results from tight, high g turns that appear only infrequently in the fighter mission profile. The resultant levels, however, are sufficiently severe (see Figure D-2) to warrant inclusion. Note that excitations arising from pullups, speed brakes, flaps, landing gears, and open refueling doors belong

Aircraft	$\frac{\mathbf{x}_{\mathrm{BT}}}{}$	$\frac{\mathbf{x}_{\mathrm{T}}}{}$	$\frac{\mathbf{x}_{L}}{}$
F-4	32.3	35.3	35.3
F-111	38.1	47.7	47.7
F-16	27.1	29.5	29.5
F-5	27.7	28.3	28.3
A-7D	20.5	25.4	25.4
F-15	39.1	40.2	40.2

\*in feet

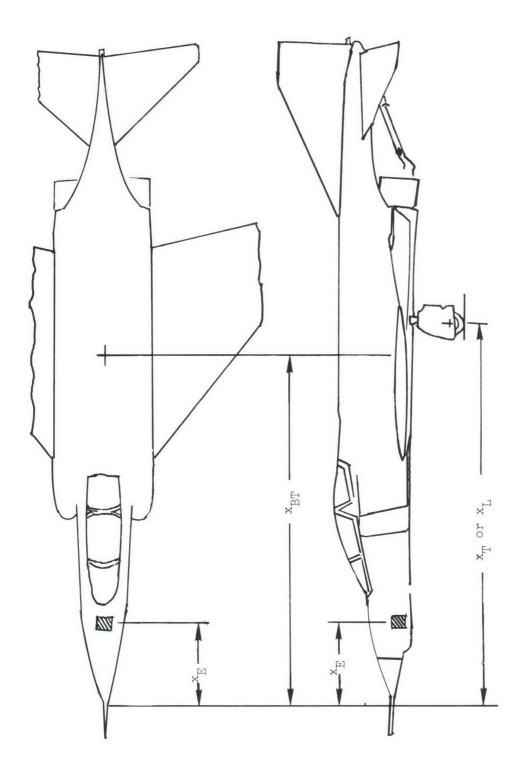


Figure D-1. Location on Aircraft of  $x_{\mathrm{BT}}$ ,  $x_{\mathrm{T}}$ ,  $x_{\mathrm{L}}$ 

in this family of special functions. They have not, as yet, been synthesized for the current computer program. The pullup phase (PU), be it noted, is, in its main characteristics, sufficiently close to that of the BT phase to allow temporary substitution.

### 1.2 Takeoff

 $S_T(f)$  is derived from F-4 data and is referenced to that aircraft at the straight and level flight conditions noted in Figure D-4. Although this approach may be suitable as an approximation for most predicted results, it is prudent to add 10  $\log_{10}$   $T_{\rm max}/5 \times 10^4$  to the high frequency portion (see H(f)) of the final predicted spectrum when the aircraft features engines with a maximum thrust,  $T_{\rm max}$ , appreciably greater than 50,000 lbs. Note that this last provision has not yet been entered into the computer program.

### 1.3 Landing

 $S_{L}(f)$  emphasizes the excitation of the fuselage second bending mode (vertical); otherwise there is no great distinction to this flight phase.

## 1.4 Low Frequency Atmospheric Turbulence

This function is, in effect, added to the SANDL flight phase of the aircraft to provide emphasis in the low frequency regime. Simulation of rough air characteristics is the objective of this special function and may be used in conjunction with P(f) at any altitude and mach combination so long as the flight conditions are straight and level.

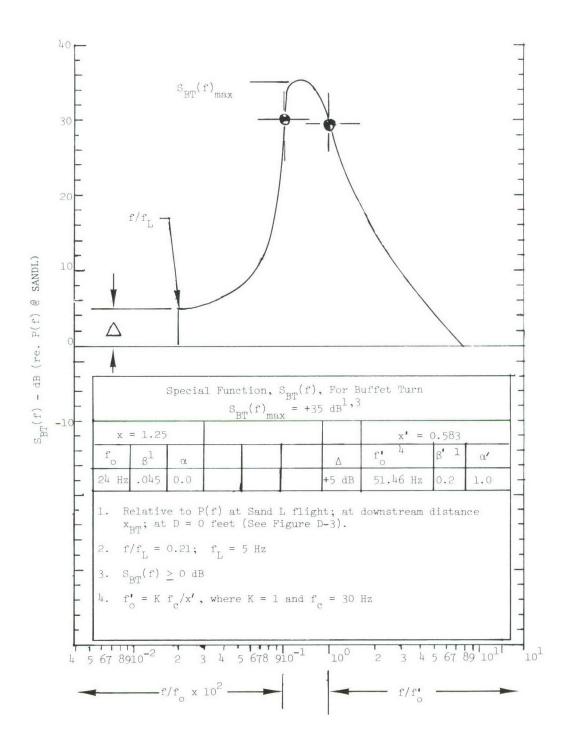


Figure D-2. Special Function,  $S_{\mbox{\footnotesize{BT}}}(f)$ , for Buffet Turn

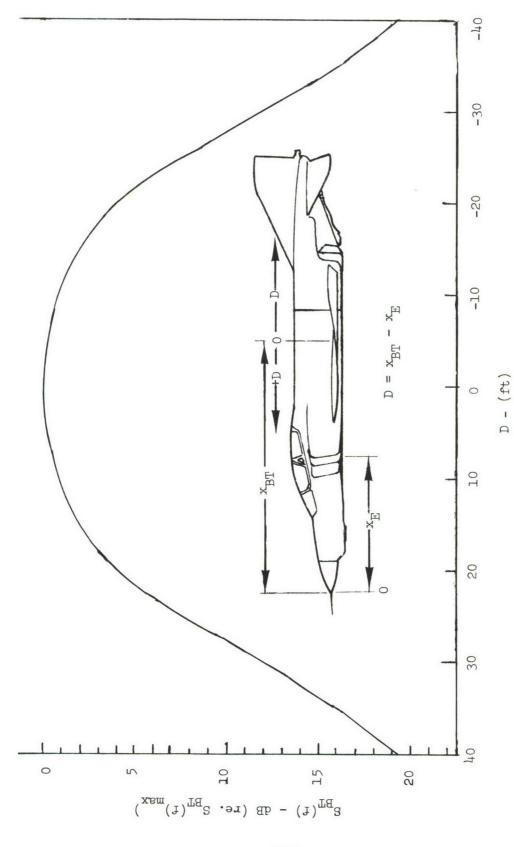


Figure D-3. Location on Aircraft of D Parameter

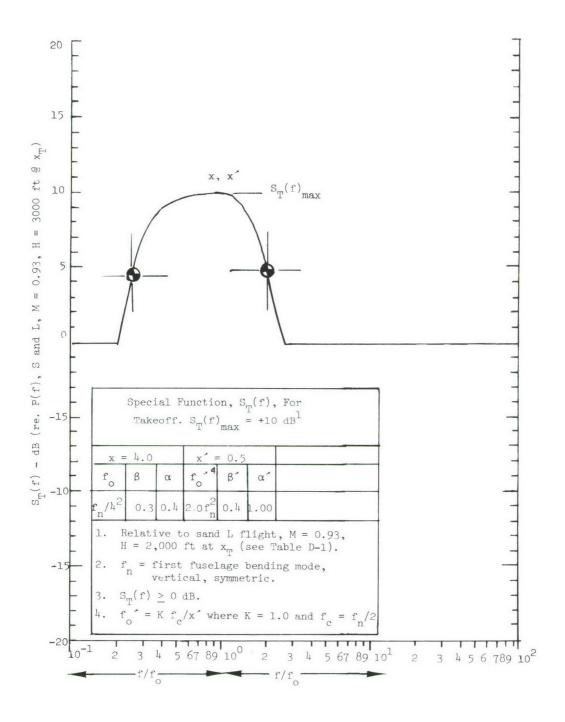


Figure D-4. Special Function,  $\boldsymbol{S}_{\underline{T}}(\boldsymbol{f})\text{, for Takeoff}$ 

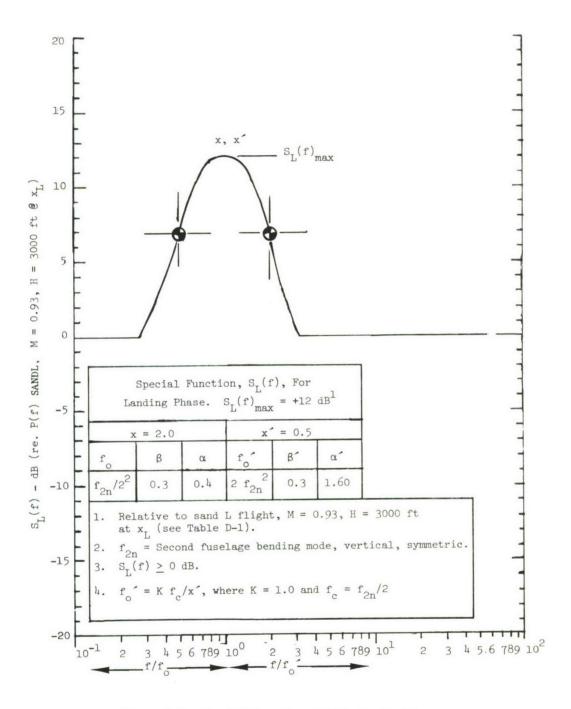


Figure D-5. Special Function,  $\mathbf{S}_{L}(\mathbf{f})$ , for Landing

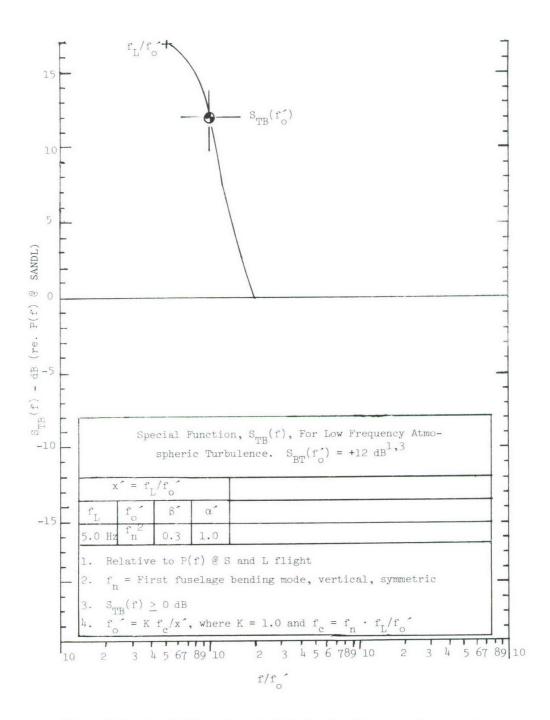


Figure D-6. Special Function,  $\mathbf{S}_{\mathrm{TB}}(\mathbf{f})$ , for Low Frequency Atmospheric Turbulence

#### APPENDIX E

## EQUIPMENT MOUNTING CATEGORIES

## 1.0 Category Selection

Table E-1 provides a number of equipment mounting configurations that, with the possible exceptions of categories III and IV(a), represent equipment mounting methods commonly encountered in fighter aircraft. By referring to the simplified drawings of the table, the user may choose which of the configurations most closely agrees with the user's particular equipment mounting situation. Having selected a category, the user has immediate reference to the adjacent remarks column which identifies and locates the transfer function corresponding to the selected category. All such transfer functions are, of course, stored in the program card file and are automatically selected when the user identifies the category during the input steps detailed in Section III.

## 1.1 I(b), A Special Case

Note that Category I(b) is simply the high frequency transfer function, H(f), and represents the only case when  $H_m(f)$  is corrected for the equipment mass loading,  $W_E$  (see Appendix C). Mass loading corrections for the other categories are integrated into their respective transfer functions, Y(f); this can be seen by referring to the associated graphs of the transfer function curves (Figures E-1 through E-5).

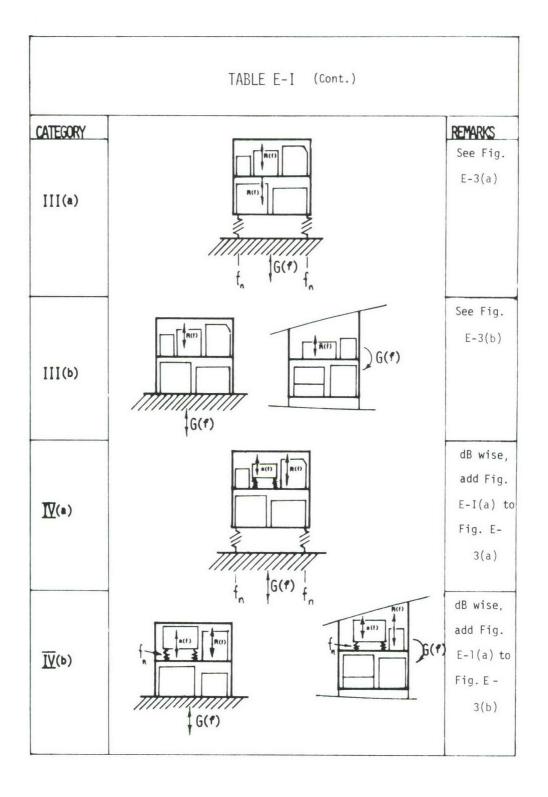
### 1.2 Spatial Adjustment for R(f)

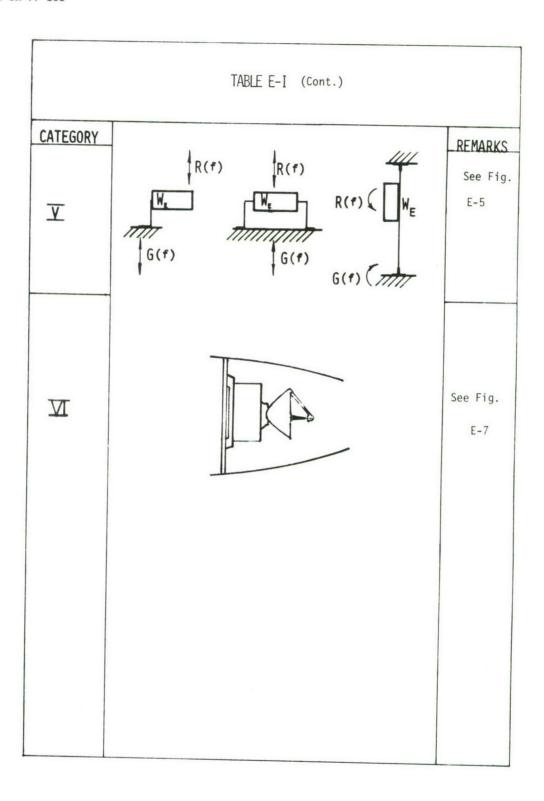
Predicted response magnitudes of the secondary structure are based upon structural transfer functions, whose maximum values,  $Y_m(f)$ , are taken to be at the first bending antinodal point of the shelves, racks, or instrument panels (Figures E-5 and E-6). Thus R(f) represents the maximum expected response of the structure and this is usually at the midspace point. For many fighter aircraft configurations, the equipment mounting points are located rather close to the end constraints of the secondary structure. From the equipment response viewpoint, this situation represents the case where R(f) tends to approach G(f) and thereby induces the following decision criteria (not yet entered into the computer program); a criteria which allows the user a choice of responses, R(f) or G(f).

If 
$$\epsilon \le L/4$$
 (see Figure E-5) let  $R(f) = G(f)$ 

If the above condition is obtained, then the user may reject the computer output of R(f) and select G(f).

	TABLE E-I	
	Transfer Function Categories For Equipments  Mounted In Fighter Aircraft	
CATEGORY		REMARKS
I(a)	$W_{E}$ $R(f)$ $G(f)$	See Fig. E-1(a)
I(p)	W <sub>E</sub> G(f)	See Fig. E-1(b) and Fig. C-7
II(a)	R(f) $G(f)$	See Fig. E-2(a) and Table E-II
II(p)	R(r)	See Fig. E-2(b) and Table E-II





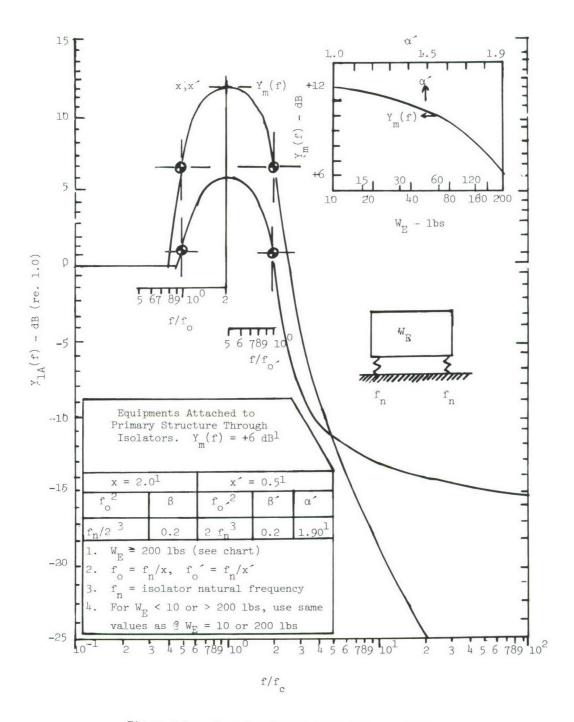
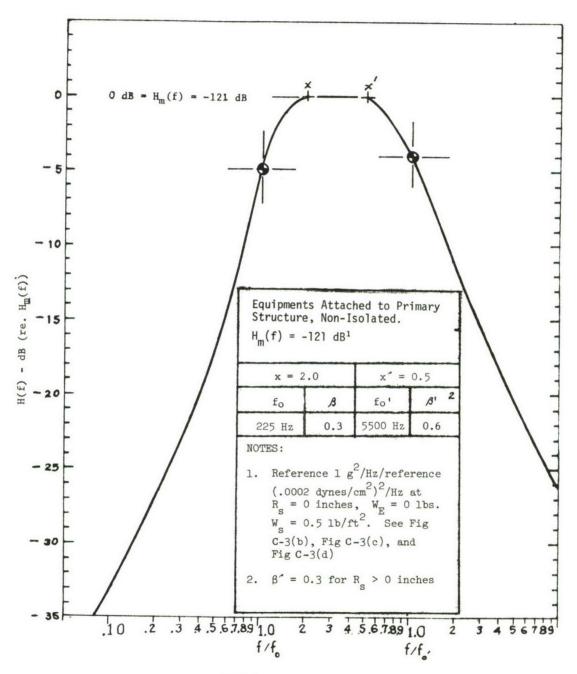


Figure E-la. Transfer Function for Category I(a)



FREQUENCY RATIO

Figure E-lb. Transfer Function for Category I(b)

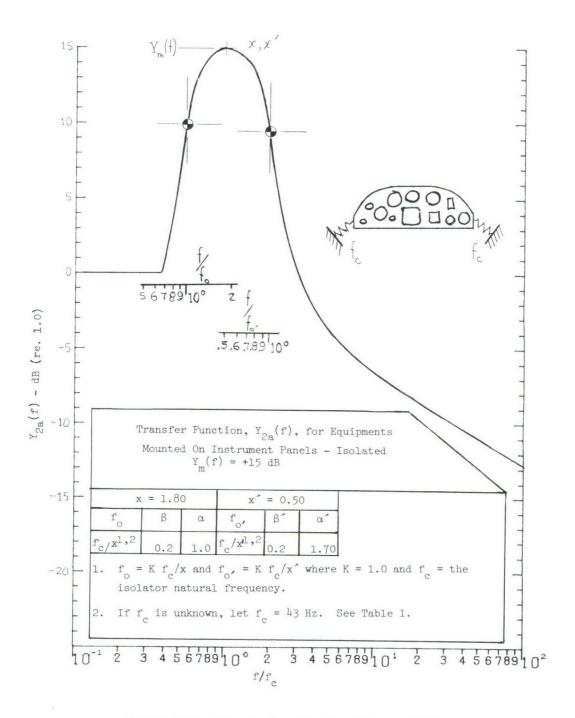


Figure E-2a. Transfer Function for Category II(a)

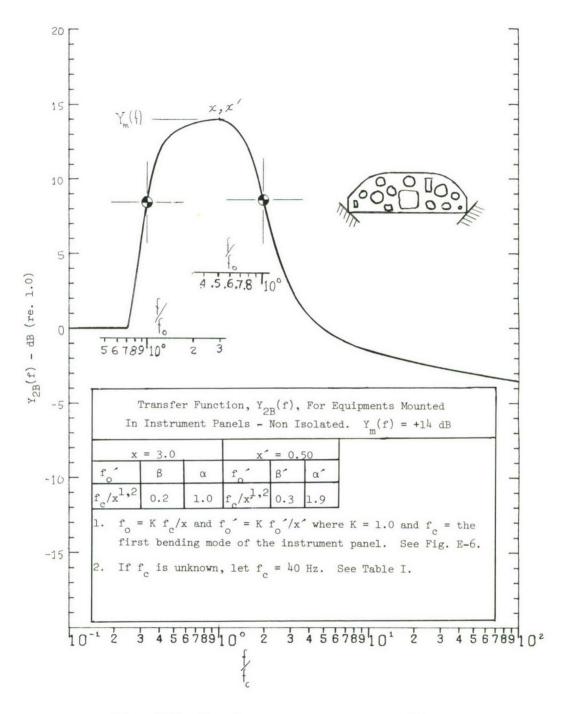


Figure E-2b. Transfer Function for Category II(b)

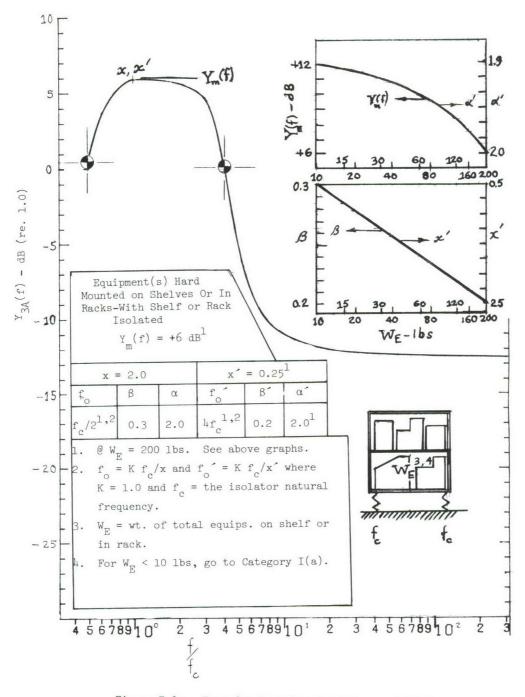


Figure E-3a. Transfer Function for Category III(a)

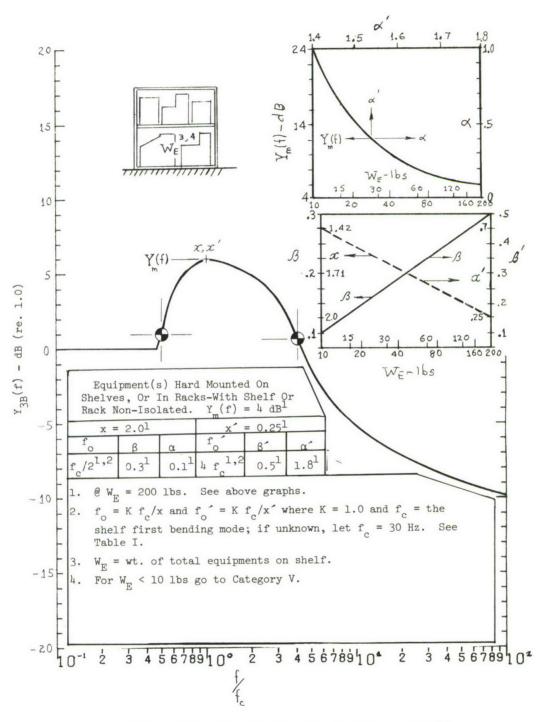


Figure E-3b. Transfer Function for Category III(b)

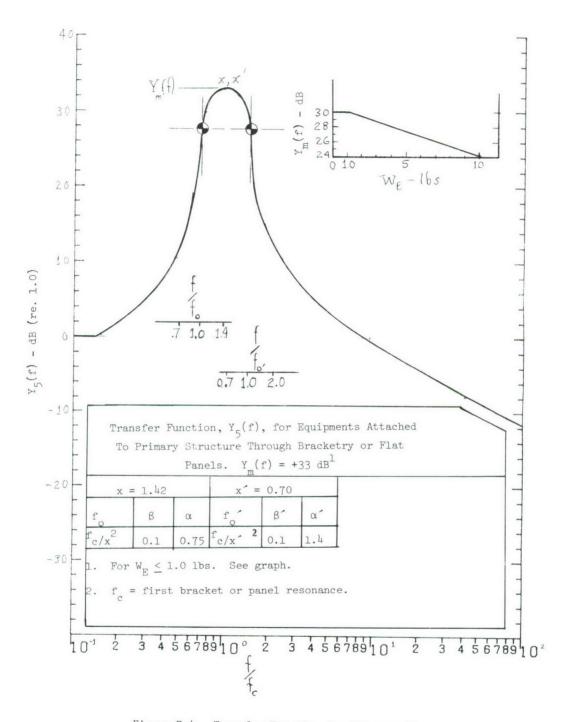
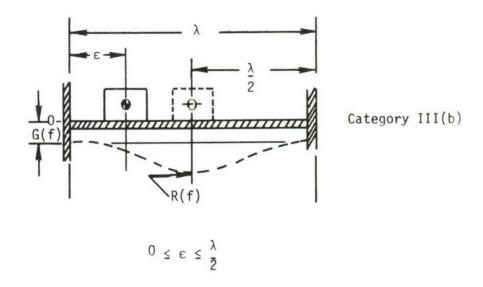


Figure E-4. Transfer Function for Category  ${\tt V}$ 



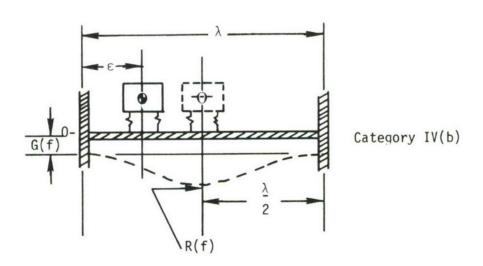
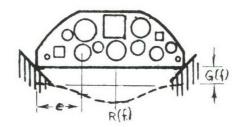


Figure E-5. Midspan Location of R(f)



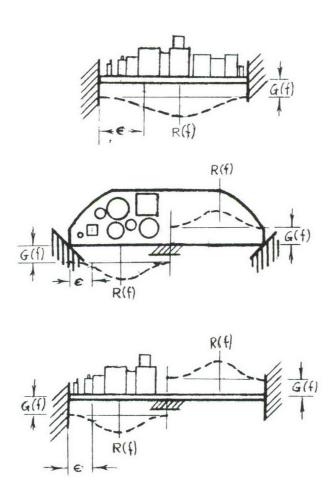


Figure E-6. Midspan Locations of R(f) for Instrument Panels

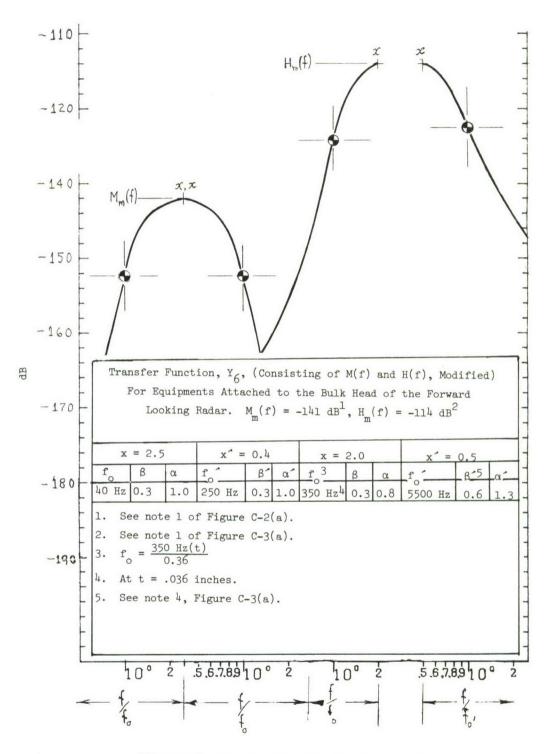


Figure E-7. Transfer Function for Category VI

#### APPENDIX F

			74/74	OPT = 1	COMPU	TER PROGRAM	FTN 4.5+414	08/16/77	13.11.28
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	C		MAYTHI	JM VALUE	DE HIEL	LL-OFF, FUR	n ( - )	VIPRE	4
=	Ç	VHI				II - OFF-FORM	FACTOR OF Y(F) FOR	VIPRE	5
	C		SPECIE	FIFD CATE	CUBA	CL-OFF-FORM	FACIOR OF TOP FOR	VIPRF	6 7
	•	٨K				LCULATING F	7HF H T	VIPRE	8
	C					LL-OFF, FOR		VIPRE	ç
	0					LL-OFF, FOR		VIPRE	10
10	0						S(F)-LANDING PHASE	VIPRE	11
	C						S(F)-LANDING PHASE	VIPRE	12
	•	ALNEHI	SLCFC	FACTOR . F	ICH-FPED.R	OLL-OFF.FOR	S(F)-LANDING PHASE	VIPRE	13
	C	ALNPLC	SLOFE	FASTOR. L	LOW-FRED.R	OLL-CFF.FOR	S(F)-LANDING PHASE	VIPRF	14
	C	ALNMAX	MAYINI	IM VALUE	OF 3(F)-LA	NOING PHASE	0117 21113110 111132	VIPRE	15
15	r.	VENXHI	NICEM . F	RED. FATI	9,4IGH FRE	Q.ROLL-CFF.	FOR S(F)-LANTING PHASE	VIPRE	16
	C	ALNXLC	NORM . F	RED. FATIO	O, LOW FRE	D. ROLL-CFF,	FOR S(F)-LANCING PHASE	VIPRE	17
	C	ALC	FLOW E	ACTOR, LOW	FRED . ROL	L-OFF=FORM F	FACTOR OF Y (F) FCR	VIPRE	18
			SEECIL	FIED CATE	SCRA			VIPRE	19
	C	TLOHY	APRAY	USED FOR	STORING F	ORM FACTORS	OF TRANSFER FUNCTIONS	VIPRE	20
5 u	C				10 F(E)-M(			VIDEE	21
	_	ALT	VEBJA	USED FOR	STORING I	NPUT ALTITU	CE VALUES	VIPRE	22
	C	ALTTUR	APPAY	USED FOR	STORING A	LTITURE TABL	ULAR VALUES	VIPRE	23
	C	ALZEHI	F (RM F	PUTUE, HIG	SH-FRED. RO	LL-OFF, FOR I		VIPRE	24
	<u></u>						2	VIPRE	25
25	C	VESELE	L CEN E	ACTOF, L	IM-EKEU.SU	LL-OFF, FOR I		VIPRE	26
							2	VIPRF	27
	0	AMAKNO				055 500		VIPRE	28
		VALLE	F ( P P F	ACTOF, HIS	H D. U. SU	LL-OFF, FOR	(=)	VIPRE	5 9
30	-		MAYTHI	IN VALUE (	TW-FREII. KU	LL-OFF, FOR	( )	VIPRE	30
C	•	APFHI				LL-OFF, FOR	7/5)	VIPRE	31
	C	10 00 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1					ITY TABULAR VALUES	VIDRE	32
	c	LVC					SURE TARULAR VALUES	VIPRE	3 3
	C		SICEE	EACTOR HT	CH-ESEU- B	OLI - OFF - FOR	L(F)-INITIAL VALUE	VIPRE	34
उह	C						L(F)-INITIAL VALUE	VIPRE	35
	_	PFZPF					HEN CALCULATING FZPF	VIPRE	37
	0	FHFHI	SLCFF	FACTOR . FT	CH-FPED.R	OLL-OFF, FOR	H(F)	VIPRE	3.8
	•	PHELC	STCEE	FACTOR. L	CW-FRED. P	OLL-OFF, FOR	H(F)	VIPRF	39
	C	THI					E FACTOR OF Y(F) FOR	VIPRE	40
40	~		SPECIF	IFO CATE	ORY			VIPRE	41
	C	LLEHI	SLCFE	FACTOR, FI	CH-FREQ.R	OLL-OFF, FOR	L(F)	VIPRE	42
	C					OLL-OFF, FOR		VIPRE	43
	•	ELC	STUBE	FACTOR, L	C4-FRED. R	OLL-OFF=SLO	F FACTOR OF Y(F) FOR	VIPRE	44
	C			ILD CALLE				VIDEE	45
45	C	DF5EH1	SLCFE	FACTOR, HI	CH-FRFQ.R	OLL-OFF, FOP	L (F)	VIPRE	46
	_						2	VIPRE	47
	0	FLSEFC	STUBE	FACTOR, L	. CH FRED . R	OLL-OFF, FOR	L (F)	VIPRE	48
	C						2	VIPRE	49
	C	ENCHI	SICLE	FACTOP, HI	CH FRED.R	OLL-OFF, FOR	M(F)	VIPRE	50
50	0	EMFLO	STUE	FACTOR, L	TW FRED.R	OLL-OFF, FOR	M(F)	VIPRE	51
		PPF	FLLEE	FACTOR, FI	TH FRED.R	OLL-OFF, FOR	P(F)	VIPRE	52
	c	EUFAHI	F CRM F	ACTOE, HIG	H FRED. RO	LL-OFF, FOR S	(F) - PUFFET TURN PHASE	VIPRE	53
	C	PUFALC	F CCN F	ACTOR, LO	FRED. RO	LL-OFF, FOR S	(F)-BUFFET TURN PHASE	VIPRE	54
	C	PUFPHI	2 FLEE	FACTOR, FI	CH FRED.R	OLL-OFF, FOR	S(F) - BUFFET TURN PHASE		55
55	C	DUFFEL	LECTA	VALUE FOR	S(F)-BUF	FET TURN PHA	SF	VIPRE	56
		FUFFZF	LUCATO	K FKED., H	TOH FRET.	RULL-DFF, FOR	S(F)-BUFFET TURN PHAS	E VIPRF	57
	1-	EUFFZL	FC1310	K FRED.,	LUW FRET.	RULL-OFF, FOR	S (F) - BUFFET TURN PHAS	E VIPRF	58

			74/74	OPT = 1		FTN 4.5+414	08/16/77	13.11.28
	-	FUEMAX	MEXIM	UM VALUE OF SEE)	FOP BUFFET-TURN F	TITCHT PHASE	VIPRF	59
	0				REQ. ROLL-CFF, FOR		VIPRE	60
60	•	BUFXLC	NCRM.	FREG. FATIO. LOW F	REQ. ROLL-OFF, FOR	BUFFET TURN PHASE	VIPRE	61
	C	Г	SPEED	CF SOUNT, CURRENT	VALUE	Joint Francisco	VIPRE	62
	C	CATGRY	ECUIP	. MCUNTING PATEGOR	RY . CURRENT VALUE		VIPRE	63
	C	CONST	FFACT	ICA OF FREG. VALUE	BY WHICH THE FRE	O.IS INCREASED	VIPRE	64
	C	CORLER	VALUE	OF CORRECTION TO	MAXIMUM VALUE OF	L(F)	VIPRE	65
F5	_				MAXIMUM VALUE OF		VIPRE	66
	C					2	VIPRE	67
	C	014	011=2	HIA (CATEGORY 1A)			VIPRE	58
	C	CIAAHI	F (RM	FACTOR, HIGH FRED.	ROLL-OFF, FOR CATE	GORY 1A	VIPRE	69
	C				ROLL-OFF, FOR CATE		VIPRF	70
70	C	C1 AAWE	AFFAY	FCR STORING TABL	LAR FORM FACTOR V	ALUES (HIGH FREC.	VIPRE	71
	r,			OFF FOR PATEGORY			VIPRE	72
	_	C148HI	STCEE	FACTOR, HIGH FREG	.ROLL-OFF, FOR Y(F	)-CATEGORY 1A	VIPRE	73
	C	CIABLE	STILLE	FACTOR, LOW FRED	.ROLL-OFF, FOR Y(F	)-CATEGORY 1A	VIPRF	74
	C	CIDEN	FIRST	FUSELAGE PENDING	MODE FRED. , FOR Y	(F) -CATEGORY 1A	VIPRE	75
75	C	CIAFZH	L C C A T	OR FRED., HIGH FRE	O.ROLL-OFF, FOR Y	F) - CATEGORY 1A	VIPRF	76
	Ć	C1AF7L	LCCAT	OR FREG., LOW FRE	POROLL-OFF, FOR Y(	F) -CATEGORY 1A	VIPRF	77
	c			UP VALUE OF Y(F)-			VIPRE	78
	C	CIAMME				D WHEN CALCULATING	VIPRE	79
2.5	r			CTION TO CLAMAX P			VIPRF	80
80	-				ILF OF Y(F)-CATEGO		VIPRF	81
	C	CINXHI	Link h.	FRED. RATIO, HIGH F	RED. ROLL-CFF, FOR	Y(F)-CATEGORY 1A	VIPRE	8.2
	_	019	NURM.	FREN.RATIO, LOW F	REQ.ROLL-CFF, FOR	Y (F) -CATEGORY 1A	VIPRE	8.3
	C	0.57		HIP (CATEGORY IR)			VIPRE	84
25	r			H2A (CATEGORY 2A)	2011 055 502 4451	CATEGORY OF	VIPRF	85
(5)	-	CZAAFI	FCDM	EACTOR A OH EDEO	ROLL-OFF, FOR Y(F)	-CATEGORY 2A	VIPRE	86
	r				ROLL-OFF, FOR Y(F)		VIPRE	87
	c				ROLL-CFF, FOR Y(F		VIPRE	88
	c	CZAEN			MODE FREG. FOR Y		VIPRF	89
on	C			UM VALUE OF Y(F)-		TET - LATEGURY 24	VIPRF	90
	٢				RFO.ROLL-CFF, FOR	V(E)-CATECORY 3A	VIPRE	92
	C	CZAXIC	NCEN.	FRED FATIO - LOW F	RLQ.ROLL-OFF, FOR	V(F) -CATEGORY 2A	VIPRE	93
	7	CZP	C2E=2	H28 (CATEGORY 28)	CESTROLE OF FOR	TO THE GOLD EN	VIPRE	94
	C	CZSAHI			ROLL-OFF, FOR Y(F)	-CATEGORY 28	VIPRE	95
CF	0				ROLL-OFF, FOR Y(F)		VIPRE	96
	C	<b>LSEBHI</b>	SLCFF	FACTOP, HIGH FRED	ROLL-OFF, FOR Y (F	)-CATEGORY 28	VIPRE	97
	C	CSELFC	CLCEE	FACTOR, LOW FRED	.ROLL-OFF, FOR Y(F	)-CATEGORY 2E	VIPRE	98
	(	LSGEN	FIFST	FUSELAGE BENDING	MODE FREG. FOR Y (	F)-CATEGORY 28	VIPRE	99
	C			UM VALUE OF Y(F)-			VIPRE	100
100	~	LSEXHI	NCFM.	FREO.FATIO.HIGH F	REQ. ROLL-CFF, FOR	Y(F)-CATEGORY 2B	VIPRE	101
	C	USJAFC	MCEA.	FRED. FATIO, LOW F	REQ.ROLL-CFF, FOR	Y (F) -CATEGORY 2B	VIPRE	102
	C	C35	U30=5	HRA (CATEGORY RA)			VIPRF	103
	_	LEVALC	E (BA	FACTOR, LOW FREQ.P	OLL-OFF, FOR Y(F) -	CATEGORY 3A	VIPRE	104
	0	CRAAP				, USER WHEN CALCULAT:	I VIPRF	105
1 CE	C				RY 34 FROM WE (EOU		VIPRE	106
	C	C345	VEEVA	FUE CADELLE LABOR	LAR BETA VALUES, U	SEC WHEN CALCULATING		107
	C		utl7	FOR Y (F) - CATEGORY	34 FROM WE (EQUIP	· WEIGHT)	VIPRF	108
	C	CSTUHI	STUEL	ENGINE FIGH 1250	.ROLL-OFF, FOR Y(F	)-CATEGORY 3A	VIPRE	109
4.45	C	C31FN	FIEST	FUSELAGE FENDING	MODE FRED., FOR Y	(F) -CATTOORY 3A	VIPRF	110
110	C	LZZXL	11 Cbr .	- K-1. FATIO, LOW FR	En.ROLL-OFF, FOR Y	(F) -CATEGORY 3A	VIPRF	111
	C	Canxin				O WHEN CALCULATING	VIPRE	112
	C	C7644			A FROM WE (EQUIP. W		VIPRE	113
	_	Cintha			LAR Y(F), MAXIMUM,		VIPRE	114
			13 17 15 10 1	THITING IN . 44X " LE	+ (+) - CATEGORY 31	FROM WE (FQUIP. WEIGH	VIPRE	115

115 C			7	4/74 OPT =	1		FTN 4.5+414	08/16/77	13.11.28
C	4.45		070	0.70 - 21170 / 0.4	T-COCH 301				
120 C C39AP ARRAY FOR YOUNG TABLARA ALUES USED MHEN VIDER 119 C C39BP ARRAY FOR STORING TABLARA ALUES USED MHEN CALCULATING VIDER 120 C C39BP AFRAY FOR STORING TABLARA BETA VALUES USED MHEN CALCULATING VIDER 121 C C39BP AFRAY FOR STORING TABLARA BETA VALUES USED MHEN CALCULATING VIDER 122 C C39BP AFRAY FOR STORING TABLARA BETA VALUES USED MHEN CALCULATING VIDER 123 C C39BP AFRAY FOR STORING TABLARA BETA VALUES USED MHEN CALCULATING VIDER 124 C C39BP AFRAY FOR STORING TABLARA BETA VALUES USED MHEN CALCULATING VIDER 125 C C39BP AFRAY FOR STORING TABLARA BETA VALUES USED MHEN CALCULATING VIDER 125 C C39BP AFRAY FOR STORING MADE FER, ROB YICH-CATECORY 3E VIDER 125 C C39BP AFRAY FOR STORING MADE FER, ROB YICH-CATECORY 3E VIDER 125 C C39BP AFRAY FOR STORING TABLARA BY VALUES USED MHEN CALCULATING VIDER 126 C C39BP AFRAY FOR STORING TABLARA BY VALUES USED HEN VIDER 127 C C39BP AFRAY FOR STORING TABLARA BY VALUES USED HEN VIDER 130 C C48BP AFRAY FOR STORING VALUES OF "ME" USED MHEN INTERPOLATING VIDER 131 C C4BP AFRAY FOR STORING TABLARA BY VALUES USED HEN VIDER 132 C C4BP AFRAY FOR STORING VALUES OF "ME" USED MHEN VIDER 133 C C4BP AFRAY FOR STORING VALUES OF "ME" USED MHEN VIDER 133 C C4BP AFRAY FOR STORING VALUES OF "ME" USED MHEN VIDER 134 C C4BP AFRAY FOR STORING VALUES OF "ME" USED MHEN VIDER 134 C C4BP AFRAY FOR STORING VALUES OF "ME" USED MHEN VIDER 135 C C4BP AFRAY FOR STORING VALUES OF "ME" USED MHEN VIDER 134 C C4BP AFRAY FOR STORING PROPOLITION FOR VIDER 135 C C5BL CATEGORY AND VIDER 135 C C5BL CATEGORY AND VIDER 136 C C5BL CATEGORY AND VIDER 136 C C5BL CATEGORY AND VIDER 136 C C5BL CATEGORY AND VIDER 137 C C5BL CATEGORY AND	115					** *** *** ***			
126   C			CKER	ARRAY FER	TURING TABULAR	ALPHA VALLES,	USED WHEN GALCULATI		
CASH									
120									
C   C39PB   AFFAY FCR STORING TABBULAR SETA: VALUES USED MHEN CALCULATIN VIDRE   123	4 20		C 7 D D	AFEAY FED S	TARPHA FUR Y(F)	-CATEGORY 38	FROM WE (EDUIP . WEIGH	VIPRE	
125   C.   C.   C.   C.   C.   C.   C.   C	120								
125   C   C39X   FIRST FUST-LAGE STYDING MODE FFET, FOR Y(F)-CATEGORY 3   UPRF   125			07000	ACTAY COD C	TODING TARM AR	PRUP WE LEGUIP	· M = 1 (- H   )	VIPRE	
125   C			63465	DETAIL FOR Y	TORING TABULAR	BEIA VALUES	USED WHEN CALCULATI		
125   C									
127	4 25								
C	169								
120									
130   C   C394									
130   C									
C	4 30								
C	1.0								
125									
125   C						COURT 301 FRU	WE (EGOIP . WEIGH!)		
135   C									
C	4 35								
C	100					-055 500 4/53	-CATECORY E		
C			CEALO	FCRN FACTOR	ION EDED POLL	-OFF FOR VIEN	-CATECORY E		
140 C C55H FIRST FUSELAGE OFNDING MODE FRED, FOR Y(F)-CATEGORY 5 VIPRE 140 C C55H FIRST FUSELAGE OFNDING MODE FRED, FOR Y(F)-CATEGORY 5 VIPRE 141 C C55HI MCGM_FRED, FAITO, HIGH FRED, ROIL-CFF, FOR Y(F)-CATEGORY 5 VIPRE 142 C C55HI MCGM_FRED, FAITO, HIGH FRED, ROIL-CFF, FOR Y(F)-CATEGORY 5 VIPRE 143 C C56 C C55HE MCGM_FRED, FAITO, LOM FRED, ROIL-CFF, FOR Y(F)-CATEGORY 5 VIPRE 144 C C C6 C C55HE MCGM_FRED, FAITO, LOM FRED, ROIL-CFF, FOR Y(F)-CATEGORY 5 VIPRE 145 C C C C C56 C C55HE MCGM_FRED, FAITO, HIGH FRED, FAITO, HIGH FRED, FOR Y(F)-CATEGORY 5 VIPRE 145 C C C C C56 C C56HE MCGATEGORY 6) VIPRE 146 C C C C C C56HE MCGATEGORY 6 VIPRE 147 C C C C C C56HE MCGATEGORY 6 VIPRE 147 C C C C C C56HE MCGATEGORY 6 VIPRE 148 C C C C C MCGATEGORY 6 VIPRE 148 C C C C C MCGATEGORY 6 VIPRE 148 C C C C C MCGATEGORY 6 VIPRE 148 C C C C C MCGATEGORY 6 VIPRE 148 C C C C MCGATEGORY 6 VIPRE 150 C C C MCGATEGORY 6 VIPRE 150 C C MCGATEGORY 6 VIPRE 150 C C MCGATEGORY 6 VIPRE 151 C C C MCGATEGORY 6 VIPRE 151 C C C MCGATEGORY 6 VIPRE 152 C C C MCGATEGORY 6 VIPRE 153 C C C MCGATEGORY 6 VIPRE 154 C C C MCGATEGORY 6 VIPRE 154 C C C MCGATEGORY 6 VIPRE 155 C C C MCGATEGORY 6 VIPRE 156 C C C MCGATEGORY 6 VIPRE 157 C C C MCGATEGORY 6 VIPRE 158 C C C MCGATEGORY 6 VIPRE 158 C C C MCGATEGORY 6 VIPRE 159 C C C MCGATEGORY 6 VIPRE 159 C C C MCGATEGORY 6 VIPRE 159 C MCGATEGORY 6 VIPRE 159			CERHI	SICEE FACTO	P. HTCH FRED POL	I-OFF-FOR VIE	)-CATEGORY 5		
140 C C55M FIRST FUSELAGE GENDING MODE FERG, FOR Y(E)-CATEGORY 5 VIPRE 142 C C55MAX MAXYMUN VALUE OF Y(F)-CATEGORY 5 VIPRE 142 C C55MAX MAXYMUN VALUE OF Y(F)-CATEGORY 5 VIPRE 143 C C55MA MCEN.FREO.FATIO, HIGH FREO.ROLL-OFF, FOR Y(F)-CATEGORY 5 VIPRE 144 C C5 C C6 L46 (CATEGORY 6) VIPRE 144 C C C6 C6 L46 (CATEGORY 6) VIPRE 145 C C6 L6146 (CATEGORY 6) VIPRE 145 C C6 L6146 (CATEGORY 6) VIPRE 146 C C6 L6146 (CATEGORY 6) VIPRE 146 C C6 L6146 (CATEGORY 6) VIPRE 146 C C6 L6146 (CATEGORY 6) VIPRE 147 USEN MHEN CALCULATION VIPRE 147 USEN MHEN CALCULATION VIPRE 148 C C C C C C C C C C C C C C C C C C C				SICEE FACTO	P. I CH EPEN POL	L-OFF-FOR VIE	-CATECORY E		
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DB AFFAY FCR STORING DECREL VALUES OF L(F),M(F) AND H(F) VIPRE 147  C USED WHEN CALCULATING L(F)-M(F)-H(F) FUNCTION VIPRE 148  C CPFL AFRAY FCR STORING DECREL VALUES WHEN MAXING CALCULATIONS VIPRE 149  C USED WHEN CALCULATING L(F)-M(F)-H(F) FUNCTIONS VIPRE 149  C CPFL AFRAY FCR STORING DECREL VALUES WHEN MAXING CALCULATIONS VIPRE 150  V(F),R(F) AND A(F)  C DBMFRS AFRAY FCR STORING TABULAR DECIPEL VALUES USED FOR VIPRE 151  C COMMENT WITH MIN. Y AXIS (DECIPEL) VALUE, AN ARGUMENT CF "XLOG" PLOT SUBRCU VIPRE 153  C CHAIN MIN. Y AXIS (DECIPEL) VALUE, AN ARGUMENT CF "XLOG" PLOT SUBRCU VIPRE 155  C DBMOD1 AFFAY FCR STORING 1ST BENDING MODE (DB) VALS. FOR CURRENT VIPRE 156  C DBMOD2 ARRAY FCR STORING SND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 156  C DBMOD2 ARRAY FCR STORING DECIBEL VALUES USED WHEN CALCULATING VIPRE 158  C DBSC AFFAY FCR STORING DECIBEL VALUES USED WHEN CALCULATIONS VIPRE 160  C DBSC AFFAY FCR STORING DECIBEL VALUES WHEN MAXING CALCULATIONS VIPRE 161  C DBSC AFFAY FCR STORING DECIBEL VALUES WHEN MAXING CALCULATIONS VIPRE 162  C COLAT AFFAY FOR STORING 1ST BENDING MODE (DB) VALUES FOR A10 VIPRE 163  C COLAT AFFAY FOR STORING 1ST BENDING MODE VALUES FOR A-7D VIPRE 166  C DBSC CREETION TO HIS DECIPEL VALUES FOR F-16 VIPRE 166  C DBSC CREETION TO HIS TORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 166  C DBSC CREETION TO HIS TORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167  C DBSC CREETION TO HIS TORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167  C DBSC CREETION TO HIS TORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167  C DBSC CREETION TO HIS TORING STORING MODE VALUES FOR F-16 VIPRE 167  C DBSC CREETION TO HIS TORING STORING MODE VALUES FOR F-16 VIPRE 167  C DBSC CREETION TO HIS TORING MODE VALUES FOR F-16 VIPRE 167  C DBSC CREETION TO HIS TORING MODE VALUES FOR F-16 VIPRE 167  C DBSC CREETION TO HIS TORING MODE VALUES FOR F-16 VIPRE 168  C DBSC CREETION TO HIS TORING MODE VALUES FOR F-111 VIPRE 169  C DBSC CREETION TO HIS TORING TO HIS TORING MODE VALUES FOR A-7D VIPRE 171	145					ANE E DISTAN	CES		
USED WHEN CALCULATING L(F)-M(F)-H(F) FUNCTION VIPRE 148  COPPEL AFRAY FOR STORING DECREL VALUES WHEN MAKING CALCULATIONS VIPRE 149  TO DETERMINE THE COORDINATES OF POINTS OF FUNCTIONS P(F),G( VIPRE 150 Y(F),R(F) AND A(F) VIPRE 151  COPPECTING "XMPMAX" FOR THE VALUE OF "RS" VIPRE 152  COEMECTING "XMPMAX" FOR THE VALUE OF "RS" VIPRE 153  COEMIN MIN. Y AXIS(DECISEL) VALUE, AM ARGUMENT OF "XLOG" PLOT SUBROU VIPRE 154  COEMODI AFRAY FOR STORING 1ST BENDING MODE (DB) VALS. FOR CURRENT VIPRE 155  COEMODI AFRAY FOR STORING 2ND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 156  COEMECTION TO H(F) FOR R VIPRE 157  COEMECTION TO H(F) FOR R VIPRE 158  COEMECTION TO H(F) FOR R VIPRE 160  COEMECTION TO H(F) FOR R VIPRE 161  COEMECTION TO H(F) FOR R VIPRE 161  COEMECTION TO H(F) FOR R COEMECTION VIPRE 162  COEMECTION TO H(F) FOR R VIPRE 163  COEMECTION TO H(F) FOR R R VIPRE 164  COEMECTION TO H(F) FOR R R VIPRE 165  COEMECTION TO H(F) FOR R R VIPRE 166  COEMECTION TO H(F) FOR R R VIPRE									
1EC CPEL AFRAY FOR STORING DECREL VALUES WHEN MAKING CALCULATIONS VIPRE 149  1EC C Y(F),R(F) AND A(F)  1EC C Y(F),R(F) AND A(F)  1EC C DBMERS AFRAY FOR STORING TABULAR DECIREL VALUES USED FOR VIPRE 151  1EC COPRECTING "XMEMAX" FOR THE VALUE OF "RS" VIPRE 153  1EC CEMIN MIN. Y AXIS(OFCIBEL) VALUE, AN ARGUMENT CF "XLOG" PLOT SUBRCU VIPRE 153  1EC CBMOD1 AFRAY FOR STORING 1ST BENDING MODE (DB) VALS. FOR CURRENT VIPRE 155  1EC CBMOD2 AFRAY FOR STORING SND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 156  1EC CBMOD3 AFRAY FOR STORING DECIBEL VALUES USED WHEN CALCULATING VIPRE 157  1EC CBMOD4 AFRAY FOR STORING DECIBEL VALUES USED WHEN CALCULATING VIPRE 158  1EC CBMOD5 AFRAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRE 161  1EC CBMOD6 AFRAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRE 162  1EC CBMOD7 AFRAY FOR STORING STORING MODE (DB) VALUES FOR A10 VIPRE 163  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR A-70 VIPRE 165  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-16  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-17  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-17  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-17  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-17  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-17  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-17  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-17  1EC CBMOD7 AFRAY FOR STORING STORING MODE VALUES FOR F-17  1EC CBMOD7 AFRAY FOR STOR									
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DBMFES ARRAY FOR STORING TARULAR DECIREL VALUES USED FOR VIPRE 152 CORRECTING "XMFMAX" FOR THE VALUE OF "RS" VIPRE 153 CEMIN MIN. Y AXIS(DECIREL) VALUE, AM ARGUMENT OF "XLOG" PLOT SUBROU VIPRE 154 CEMODI AFRAY FOR STORING 1ST BENDING MODE (DB) VALS. FOR CURRENT VIPRE 155 TYPE AIFORAFT VIPRE 156 CEMODI AFRAY FOR STORING 2ND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 156 CEMODI AFRAY FOR STORING 2ND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 157 TYPE AIFORAFT VIPRE 158 CEMODI TO H(F) FOR R VIPRE 158 CEMPE TO THE AIFORAFT VIPRE 159 CEMPE TO THE AIFORAFT VIPRE 160 VIPRE 160 CEMPE TO THE AIFORAFT VIPRE 161 CEMPE TO THE COORDINATES OF POINTS OF FUNCTIONS P(F), S( VIPRE 162 CEMPE TO DETERMINE THE COORDINATES OF POINTS OF FUNCTIONS P(F), S( VIPRE 163 CEMPE TO DETERMINE THE COORDINATES OF POINTS OF FUNCTIONS P(F), S( VIPRE 164 CEMPE TO THE AIF AY FOR STORING 1ST BENDING MODE (DB) VALUES FOR A-70 VIPRE 165 CEMPE AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 166 CEMPE AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167 CEMPE AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167 CEMPE AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 168 CEMPE AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169 CEMPE AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169 CEMPE AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169 CEMPE AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169 CEMPE TO	150	C				25 01 1011110	0. 10. 120. 1 117,0		
COMPRECTING "XMEMAX" FOR THE VALUE OF "RS"  CEMIN MIN. Y AXIS(OFCIGEL) VALUE, AN ARGUMENT OF "XLOG" PLOT SUBROU VIPRE 154  CEMODI AFFBY FOR STORING 1ST BENDING MODE (DB) VALS. FOR CURRENT VIPRE 155  TYPE AIFCRAFT VIPRE 156  CHANDE AFFBY FOR STORING 2ND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 157  TYPE AIFCRAFT VIPRE 158  CHANDE AFFBY FOR STORING DECIBEL VALUES USED WHEN CALCULATING VIPRE 159  CHANDE AFFBY FOR STORING DECIBEL VALUES USED WHEN CALCULATING VIPRE 160  CHANDE AFFBY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRE 161  CHANDE AFFBY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRE 162  CHANDE AFFBY FOR STORING 1ST BENDING MODE (DB) VALUES FOR ATO VIPRE 163  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR ATO VIPRE 165  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-15 VIPRE 166  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 168  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169  CHANDE AFFBY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 170  CHANDE AFFBY FOR STORING 2ND BENDING MODE VALUES FOR A-70 VIPRE 171		•				DECIREL VALUE	S USED FOR		
CENIN MIN. Y AXIS(OFCISCL) VALUE, AM ARGUMENT OF "XLOG" PLOT SUBROU VIPRE 154 CEMODI AFFAY FOR STORING 1ST BENDING MODE (DB) VALS. FOR CURRENT VIPRE 155 CEMODI AFFAY FOR STORING 2ND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 156 CEMODI AFFAY FOR STORING 2ND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 157 CEMODIZ AFFAY FOR STORING DECIBEL VALUES USED WHEN CALCULATING VIPRE 159 CEMODIZ OF COMMAND OF COMMAND VIPRE 160 CEMODIZ OF COMMAND OF COMMAND VIPRE 161 CEMODIZ OF COMMAND OF COMMAND OF CALCULATIONS VIPRE 161 CEMODIZ OF COMMAND OF COMMAND OF COMMAND VALUES FOR ALC VIPRE 163 CEMODIZ OF COMMAND OF COMMAND VALUES FOR ALC VIPRE 164 CEMODIZ OF COMMAND OF COMMAND VALUES FOR ALC VIPRE 165 CEMODIZ OF COMMAND OF COMMAND VALUES FOR ALC VIPRE 165 CEMODIZ OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 166 CEMODIZ OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 166 CEMODIZ OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 166 CEMODIZ OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 166 CEMODIZ OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 167 CEMODIZ OF COMMAND OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 167 CEMODIZ OF COMMAND OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 169 CEMODIZ OF COMMAND OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 169 CEMODIZ OF COMMAND OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 169 CEMODIZ OF COMMAND OF COMMAND OF COMMAND VALUES FOR FOLIO VIPRE 169 CEMODIZ OF COMMAND									
155 C COMMODI AFRAY FOR STORING 1ST BENDING MODE (DB) VALS. FOR CURRENT VIPRE 156 C DBMODZ ARRAY FOR STORING 2ND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 157 TYME AIFCRAFT VIPRE 158 C DBMODZ ARRAY FOR STORING DECIBEL VALUES USED WHEN CALCULATING VIPRE 158 C CORRECTION TO HIF) FOR R VIPRE 160 C DBSPL ARRAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRE 161 C DBSPL ARRAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRE 162 C COLAIT AFRAY FOR STORING 15T BENDING MODE (DB) VALUES FOR A10 VIPRE 163 C CB1A1T AFRAY FOR STORING 1ST BENDING MODE VALUES FOR A-70 VIPRE 165 C CB1515 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 166 C DB1516 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167 C DB1516 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167 C DB1511 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 168 C DB1111 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169 C DB1111 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169 C DB2A1C AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-111 VIPRE 169 C DB2A1C AFRAY FOR STORING 2ND BENDING MODE VALUES FOR A-70 VIPRE 170 C CB2A7C AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-70 VIPRE 171		n							
TYPE AIFORAFT  C DBMODZ ARRAY FOR STORING 2ND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 156  C DBMODZ AFRAY FOR STORING 2ND BENDING MODE (DB) VALS. FOR CURRENT VIPRE 158  C DBSS AFRAY FOR STORING DECIBEL VALUES USED WHEN CALCULATING VIPRE 159  GCFRECTION TO H(F) FOR R  VIPRE 160  VIPRE 160  VIPRE 161  C DBSPL ARRAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRE 162  TO DETERMINE THE COORDINATES OF POINTS OF FUNCTIONS P(F),S( VIPRE 163)  C CPIAIO AFRAY FOR STORING 1ST BENDING MODE (DB) VALUES FOR A10  C DB1A7T APPAY FOR STORING 1ST BENDING MODE VALUES FOR A-70  VIPRE 165  C DB1E15 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-15  C DB1E15 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16  C DB1E14 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16  C DB1E15 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16  C DB1E14 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16  C DB1E15 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16  C DB1E14 AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-111  C DB2A1C AFRAY FOR STORING 2ND BENDING MODE VALUES FOR A-70  VIPRE 170  170  C CB2A7C ARRAY FOR STORING 2ND BENDING MODE VALUES FOR A-70  VIPRE 171		C							
TYPE AIFCRAFT  C PRSS AFFAY FCR STOPING DECIBEL VALUES USED WHEN CALCULATING VIPRF 158  C CPRECTION TO H(F) FOR R VIPRF 160  O DESPL AFFAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRF 161  C DESPL AFFAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRF 162  TO CETAIL AFFAY FOR STORING 1ST BENDING MODE (DB) VALUES FOR A10 VIPRF 163  C DETAIL AFFAY FOR STORING 1ST BENDING MODE VALUES FOR A-70 VIPRF 165  C DETAIL AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-15 VIPRF 166  C DETAIL AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRF 167  C DETAIL AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRF 167  C DETAIL AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRF 168  C DETAIL AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-111 VIPRF 169  DESAIC AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-70 VIPRF 170  170 C DESAIC AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-70 VIPRF 171	155	C							
C PRSS AFFAY FOR STORING DECIBEL VALUES USED WHEN CALCULATING VIPRF 159  GCFRECTION TO H(F) FOR R VIPRF 160  DBSPL AFFAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRF 161  C DBSPL AFFAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRF 162  TO DETERMINE THE COORDINATES OF POINTS OF FUNCTIONS P(F),S( VIPRF 163  C DB1A11 AFFAY FOR STORING 1ST BENDING MODE (DB) VALUES FOR A-10 VIPRF 165  C DB1A17 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-15 VIPRF 165  C DB1E15 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRF 166  C DB1E16 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRF 167  C DB1E14 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRF 168  C DB1I11 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-111 VIPRF 169  DB2A10 AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-70 VIPRF 170  170 C DB2A70 AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-70 VIPRF 171		C	08,005	ARRAY FCR S	TORING 2ND BEND	ING MODE (DB)	VALS. FOR CURRENT	VIPRF	157
GCERECTION TO H(E) FOR R  OURSE  OURS		C		TYPE AIRCRA	FT			VIPRE	158
GCPRECTION TO H(F) FOR R  OBSPL ARFAY FOR STORING DECIREL VALUES WHEN MAKING CALCULATIONS VIPRE 161  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE (DB) VALUES FOR A10  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE VALUES FOR A-70  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE VALUES FOR A-70  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-15  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-11  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-111  CC CRIAIC AFRAY FOR STORING 1ST BENDING MODE VALUES FOR F-111  CC CRIAIC AFRAY FOR STORING 2ND BENDING MODE VALUES FOR A-70  VIPRE 170  170  CC CRIAIC AFRAY FOR STORING 2ND BENDING MODE VALUES FOR A-70  VIPRE 171		C	Lbsc	AFFAY FCR S	TORING DECIBEL	VALUES USER W	HEN CALCULATING	VIPRE	159
DESPL ARRAY FOR STORING DECIBEL VALUES WHEN MAKING CALCULATIONS VIPRE 162 TO DETERMINE THE COORDINATES OF POINTS OF FUNCTIONS P(F),S( VIPRE 163 CP1A1C AFPAY FOR STORING 1ST BENDING MODE (DB) VALUES FOR A-TO VIPRE 164 CB1A7T APPAY FOR STORING 1ST BENDING MODE VALUES FOR A-TO VIPRE 165 C DB1F15 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-15 VIPRE 166 C DB1F16 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167 C DB1F1 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 168 C DB111 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-11 VIPRE 169 C DB111 AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-TO VIPRE 170 C DB2A7C AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-TO VIPRE 171		C		GCREECTION	TO HIF) FOR R			VIPRE	
TO SETERMINE THE COORDINATES OF POINTS OF FUNCTIONS P(F),S( VIPRE 163 C P1A11 AFPAY FOR STORING 1ST BENDING MODE (DB) VALUES FOR A10 VIPRE 165 C P81A7T AFPAY FOR STORING 1ST BENDING MODE VALUES FOR A-7D VIPRE 165 C P81F15 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-15 VIPRE 166 C P81F16 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167 C P81F4 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 168 C P8111 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-111 VIPRE 169 D82A10 AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-7D VIPRE 170 C P82A70 AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-7D VIPRE 171	150	0						VIPRE	
C CRIAIC AFPAY FOR STORING 1ST BENDING MODE (DB) VALUES FOR A1C VIPRE 164 CB1A77 APPAY FOR STORING 1ST BENDING MODE VALUES FOR A-7D VIPRE 165 C CB1A77 APPAY FOR STORING 1ST BENDING MODE VALUES FOR F-15 VIPRE 166 C CB1A16 AREAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167 C CB1A14 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 168 C CB1A11 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-111 VIPRE 169 C CB2A1C AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A1C VIPRE 170 C CB2A7C AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-7D VIPRE 171		•	DESPL	ARFAY FOR S	TORING DECIBEL	VALUES WHEN M	AKING CALCULATIONS	VIPRF	162
165 165 165 166 167 168 168 169 169 169 169 169 169 169 169 169 169		C		TO DETERMIN	E THE COORDINAT	ES OF POINTS	OF FUNCTIONS P(F),S	( VIPRF	163
165 C CRIFIS AFPAY FOR STORING 1ST BENDING MODE VALUES FOR F-15 VIPRE 166 C CRIFIC ARRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167 C CRIFIC AFPAY FOR STORING 1ST BENDING MODE VALUES FOR F-10 VIPRE 168 C CRIFIC AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-111 VIPRE 169 C CRIFIC AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-70 VIPRE 170 C CRIFIC AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-70 VIPRE 171		•							
DRIFTE ARRAY FOR STORING 1ST BENDING MODE VALUES FOR F-16 VIPRE 167 C PRIF4 ARRAY FOR STORING 1ST BENDING MODE VALUES FOR F-4 VIPRE 168 C DRIFTE STORING 1ST BENDING MODE VALUES FOR F-111 VIPRE 169 C DRIFTE ARRAY FOR STORING 2ND BENDING MODE VALUES FOR A1C VIPRE 170 C DRIFTE ARRAY FOR STORING 2ND BENDING MODE VALUES FOR A-7D VIPRE 171		^	CB1A7F	APPAY FOR S	TORING 1ST BEND	ING MODE VALU	ES FOR A-7D		
167 168 169 169 169 169 169 169 169 169 169 169	165	C	P81F15	AFRAY FOR S	TORING 1ST PEND	ING MODE VALU	5S FOR F-15	VIPRF	
C CRIF4 AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-4 VIPRF 168 C DRIII AFFAY FOR STORING 1ST BENDING MODE VALUES FOR F-111 VIPRF 169 C DRIA10 AFFAY FOR STORING 2ND BENDING MODE (DB) VALUES FOR A1C VIPRF 170 C CREATE AFFAY FOR STORING 2ND BENDING MODE VALUES FOR A-7D VIPRF 171		•	DR1F1F	ARRAY FOR S	TORING 1ST BEND	ING MODE VALU	ES FOR F-16		
C DRILL AFFAY FOR STOPING 1ST BENDING MODE VALUES FOR F-111 VIPRF 169 C DRIALO AFRAY FOR STORING 2ND BENDING MODE (DB) VALUES FOR ALC VIPRF 170 C CREATE ARRAY FOR STORING 2ND BENDING MODE VALUES FOR A-7D VIPRF 171									
DREATC AFRAY FOR STORING 2ND BENDING MODE (DB) VALUES FOR A1C VIPRF 170 170 CREATC ARRAY FOR STORING 2ND BENDING MODE VALUES FOR A-7D VIPRF 171		•							
170 G CBRATE ARRAY FOR STORING RND BENDING MODE VALUES FOR A-70 VIPRF 171									
그런 '막 그는 그를 그는 그를 그는 것이 되는 것도 있다면 그는 그들이 가는 그는 것이 없는 것이 없어	170								

		7	4/74 CPT=1	FTN 4.5+414	08/16/	77 13.11.28
	r r	DOFIE	APRIV FOR STOPING SHO RENDI	NG MODE VALUES FOR F-16	VIPR	F 173
			VEBUA ELB STOBING SAD BENDI		VIPR	
			AFRAY FCR STORING 2ND BENDI			
17=			AFFAY FCP STOPING DECIREL V		VIPRI	
	_		S (F) TO METERMINE S (F), G		VIPP	177
	C		FT N BT M	9T F	VIPR	178
	^	JE PEL	ARPAY FOR STORING DECIBEL V	ALUES WHEN MAKING CALCULA	TIONS VIPRE	179
	C		TO SETERMINE THE COORDINATE		VIPRI	180
180	C		L(F)-M(F)-H(F),G(F),R(F),A(		VIPR	F 181
		CELLLE	INTERVAL BETWEEN THE UNIFOR	MLY SPACED "D" VALUES FOR	EACH C VIPRI	
	C		WHICH A DR MALUE IS STOPED	IN ARRAY "DOBVAL"	VIPRI	
	L [	FLRS	CCERECTION TO M(F) AND H(F)	FOR R (CISTANCE FROM SKI	VIPRI	F 184
	C			5	VIPR	
185			PCUNCARY LAYER THICKNESS AT		VIPR	
			BCUNDARY LAVER THICKNESS AT		VIPR	
		JE FME	CCEFECTION TO H(F) FOR W (E	OUIPMENT WEIGHT)	VIPR	
	•		F		VIPR	
	C (	ELMS	CCESECTION TO M(E) VND H(E)		ITY) VIPRI	
100	_			5	VIPR	
		) F	DIAMPTER OF FUSELAGE AT LOC		VIPR	
			NCEMALIZED, AVERAGE DENSITY		VIPR	
		W-100	DISTANCE BETHEEN UNIFORMLY			
4.55	c r	211-412	FOR EACH OF WHICH A DR VALU			
105	,	JW-1K	DISTANCE BETWEEN UNIFORMLY			
		SHEEK	DISTANCE BETWEEN UNIFORMLY			
	•	CMEEK	FOR TACH OF WHICH A DB VALU			
	r 1	VNEEC	INTERVAL, DELTA PS, BETWEEN T			
2.5	_	AUDIC	WHEN CALCULATING CORRECTION		VIPR	
۵.,	c r	YMODA	INTERVAL, DELTA XE, BETWEEN T	ARULAR 1ST BENDING MODE (		
	Ċ	A 01.1	SICSED IN APPAY DEMONE FOR	CURRENT TYPE ATRORAGE	VIPR	F 203
		SUDMX	INTERVAL, DELTA XE, PETWEEN T	APULAR 2ND PENDING MODE (		
	•		STORED IN ARRAY DOMODE FOR	CURRENT TYPE AIRCRAFT	VIPR	F 205
205	C	XIAIC	INTERVAL, DELTA YE, BETWEEN T		ALS., A- VIPR	F 206
		Y 1 A7 E	INTERVAL, DELTA YE, RETWEEN T	ARULAR 1ST PENDING MODE V	ALS., A- VIPR	F 207
			INTERVAL, DELTA XE, RETWEEN T			
	0	X1F1E	INTERVAL, OFLIA YE, BETWEEN T	ABULAR 1ST BENDING MODE V.	ALS.,F- VIPR	F 209
	r 1	1X1F4	INTERVAL, DELTA XE, RETWEEN T	APULAR 1ST PENDING MODE V	ALS., F- VIPR	F 210
210	0 [	X1111	I * TERVAL, DELTA XE, BETWEEN T	APULAR 1ST PENDING MODE V	ALS.,F- VIPR	F 211
	_ [	TYZAIL	INTERVAL, DELTA XE, BETWEEN T	APULAR 2ND PENDING MODE V	ALS., A- VIPR	F 212
	C (	Y2A7[	INTERVAL, DELTA XE, DETWEEN T	ARULAR 2ND RENDING MODE V	ALS., A- VIPR	F 213
			INTERVAL, DELTA XE, BETWEEN T			
			INTERVAL, DELTA XE, BETWEEN T			
215			INTERVAL, DELTA XE, RETWEEN T			
			INTERVAL, DELTA YT, BETWEEN T	MES OF LECENDS ON DIOTS	VIPR	F 218
		DANVE	ORDINAL DISTANCE RETWEEN LI	ED EUNCTION	VIPR	
			INPUT VALUE FOR FO FOR CATE			
220			INPUT VALUE FOR FO FOR CATE		VIPR	
550			INFUT VALUE FOR MULTIPLICAT		VIPR	
			CENTER FREG. OF S(F)		VIPR	
	٢		QT		VIPR	
	C F	EL X	APRAY FOR STORING VALUES OF	FLEX-FUNCTIONS USED WHEN		
225	C		CALCULATING L(F)-M(F)-H(F)		VIPR	
0.00		40-		050 0011 055) 500 D(5)	VIPR	
	1	FLXDE	AUCO. IL FERTER CALLETON (HI-L	PER . ROLL - OFF) FOR P(F)	ATIK	C
		L XII	VALUE OF FLEX-FUNCTION WHEN		VIPR	

			74/74 not=1	FTN 4.5+414	08/16/77	13.11.28
	^		VALUE OF TRANSFER OR SPECIAL FUNCTION	ONS WHEN FEF OR FEF!	VIPRE	230
230	C			ССС	VIPRE	231
	C	FLOFHI	LCCOTOR FRED., HIGH-FRED. ROLL-CFF, FOR		VIPRE	232
	•			2	VIPRE	233
	C	FL2FLC	LCCOTOR FRED., LOW-FPED.ROLL-OFF, FOR	? L (F)	VIPRE	234
	•			2	VIPRE	235
235	Ũ.	FMAX	MAXIMUM FRED. VALUE USED WHEN CALC. VA	ALUES OF TRANSFER FUNCT	I VIPRF	236
	C		MAYIMUM FREQ. FOR PLOT OF G(F)		VIPRE	237
	0	FMAYHE	MAXIMUM FRED. FOR PLOT OF H(F)		VIPRF	238
	7	EMDXDE	MAXIMUM FRED. FOR PLOT OF P(F)		VIPRF	239
	•	<b>FMFHI</b>	LCCATOR FRED., HIGH-FPED. ROLL-OFF, FOR	R M(F)	VIPRF	240
540	C		LCCOTOR FPLO., LOW-FRED. ROLL-CFF, FOR	R M(F)	VIPRE	241
	_		MINIMIN FRED. FOR PLOT OF G(F)		VIPRF	242
	_		MINIMUM FRED. FOR PLOT OF H(F)		VIPRE	243
	C		MINIMUM FRED. FOR PLOT OF P(F)		VIDEL	244
241	-	FN	1ST FUSELAGE BENDING MODE FRED., VERT		VIPRE	245
21.5	C	LD- IHL	AFFAY FOR STOFING VALUES OF FREG. US			246
	0	5050	AFF. AV . CO. CTO. TAG . CO. CO. U. U. C. C. CO.	0		247
		ES-U	AFRAY FOR STORING FRED. VALUES SELECT		VIPRF	248
	_	FRO	L(F)-M(F)-H(F) AND USED AS ABSCISSAS	S OF BUINIS ON PEOIS	VIPRE	249
250	C	FCEL	TEEN ALUE	ED FOR ARCOTECAS OF DOX		250
2511	C	LYPL	ON FLOTS OF P(F) AND H(F)	ED FOR AFSCISSAS OF POI	VIPRE	251 252
	•	FZ	AFRAY FOR STORING VALUES OF F AND	EN TISED WHEN CALC LIEN-		253
	c	F 2	G G	OSES WHEN CALCALIFY	VIPRE	254
	C	FZHEHT	LOCATOR FREQ., HISY-FREQ. ROLL-OFF, FOR		VIPRF	255
255	r		LCCATOR FRED., LOW FRED. ROLL-OFF, FOR		VIPRE	256
	C	F7HI	LCCOTOR FOFT. HIGH FRET. ROLL-OFF, FOR			257
	^		LCCATOR FRED., HIGH FRED. ROLL-OFF, FOR		VIPRE	258
	_		LCCATOR FRED., LOW FRED. ROLL-CFF, FOR		VIPRE	259
	~		LCCATOR FOLD., LOW FRED. ROLL-CFF, FOR		R VIPPF	260
SEU	٢		LCCATCP FRED., HIGH FPED. ROLL-CFF, FOR		VIPRF	261
	C	FINFLC	LCCATOR FRED., IOW FRED. ROLL-CFF, FOR	₹ M(F)	VIPRE	262
	-	F7PF	LCCATOR FRED., HIGH FRED. ROLL-OFF, FOR	R F(F)	VIPRE	263
	C	ESV.	STOCKE FUSELAGE BINDING MODE FREQ.,	VERTICAL-SYMMETRIC	VIPRE	264
	~	H	ASPAY FOR STORING VALUES OF ALTITUDE		VIPRE	265
265	(	HIFU	APRAY FOR STORING VALUES=0 OR =1, DE	NOTING LOW-PASS, FICH-PA		266
	C	HI1c	HEIGHT OF CHARACTERS ON PLOT LABELS		VIPRE	267
	Ċ.		HEIGHT OF CHAPACTERS ON PLOT LARELS	TITLES ETC.	VIPRF	268
	C	HNDX	MAXIMUM VALUE OF ALTITUDE		VIPRE	269
	,	I	WCFKING INTEGER VARIABLE		VIPRE	270
271	C		= 1HA FOR ALUMINUM		VIPRF	271
	-	IA10	= 7H 4-10 FOR COMPARE WITH IPLANE (		VIPRE	272
		IA7C	=7H A-7D FOR COMPARE WITH IPLANE (	1)	VIPRE	273
			= 1F PLANK = 2FET PUFFET TURY		VIPRF	274
275	C			TERMINING CURRENT		
275	C	ICK	VARIABLE COUAL TO 1 OR 0 USEC FOR DE	TIER TINING CORKENI	VIPRF VIPRF	276
	C	TERROR	ARCLMENT OF SUBPOUTINE "READOBS" WHI	TOL DETERMENTS	VIPRE	278
	•	1 CAROK	REANCHING DIPECTION AFTER RETURN FRO		VIPRE	279
	C	IFTEST	SUPSCRIPT OF FIRST ELLMENT IN AN ARE		VIPRE	280
285	C		SET FOUAL TO VARIABLE ISANDL OR VARI		VIPRE	281
	C	IFN	= 1HN OR 2H2N FOR SUBSCRIPT IN PRINT		VIPRE	282
	•			N SV.	VIPRE	283
	~	IFNISH	= 6HFINISH USED FOR COMPARE WITH CONT		VIPRE	284
	•		OF INPUT DATA CARDS		VIPRF	285
245	_	IF111	= PH F-111 FOR COMPARE WITH IPLANE	(1)	VIPRF	286

		8	24/74 CPT=1	FTN 4.5+414	08/16/77	13.11.28
	C	IF15	=7F F-15 FOR COMPARS WITH IPL	ANF (1)	VIPRF	287
	_	IF16	=7H F-16 FOR COMPARE WITH IPL		VIPRF	288
	C	IF4	=6H F-4 FOR COMPARE WITH IPLA		VIPRE	289
	r	IHCLD			VIPRF	290
Sec	C	1. 20	INPUT, CATA CARD AFTER RETURN FR		VIPRF	291
-	C	II	WORKING INTEGER VARIABLE	TO TO THE MEMOCIO	VIPRE	292
	C		=7HLANCING FOR LANDING FLIGHT P	HASE	VIPRE	293
	C		ARRAY FOR STORING PLOT TITLE LI		VIPRE	294
	C		ARRAY FOR STOPING PLOT TITLE LI		VIPRE	295
205	C	IMAG	= 1FF FCR MAGNESTUM	500 F 2000 60 400 <del>4</del>	VIPRE	296
	C	INCPLT	VALUE (PLANKS OR NOT BLANKS) DET	ERMINES WHETHER THE FLCTS		297
	C		TRANSFER AND PESPONSE FUNCTIONS		VIPRE	298
	C	IPHASE	SET FOLAL TO CHAR. COMB. DENOTING		F VIPRF	299
	C		ARPAY FOR STORING INPUT VALUES			300
300	~		INTEGER VARIABLE FOR COUNT OF P		VIPRF	301
	77	ISANDL	= FHSANDL, DENOTING S AND L FLIGH	T PHASE	VIPRE	302
	~		= 145, DENOTING STEEL PLATE MATER		VIPRE	303
	٢		=7HTAKEOFF, DENOTING TAKFOFF FLI		VIPRF	304
	_		= 1HT, DENOTING TITANIUM PLATE MA		VIPRF	305
300	C		AFPAY FOR STORING PLOT TITLE LI		VIPRF	306
	~		= 2HTE, FOR LOW FRED. ATMOS. TURA		VIPRE	307
	0	IX	INTEGER VARIABLE FOR SUBSCRIPI	IN PRINT OF X ,X ,X OR X	VIPRE	308
	_			PT T L E	VIPRE	309
	0	J	INTEGER WORKING VARIABLE		VIPRE	310
310	-	<b>JFLITF</b>	INFUT VALUE FOR FLIGHT PHASE		VIPRF	311
	-	K	INTEGER WORKING VARIABLE		VIPRE	312
	C	L	INTEGER WORKING VARIABLE		VIPRF	313
	0	LXNAME	AREJY FOR STORING CHARACTERS FO	R NAME OF X-AXIS ON FLCT	VIPRF	314
	_	LYNAME	AFFAY FOR STORING CHARACTERS FO	R NAME OF Y-AXIS ON FLOT	VIPRE	315
315	r	M	INTEGER WORK VAFIABLE		VIPRE	316
	C	MATERL	IMPUT VALUE FOR PLATE MATERIAL		VIPRF	317
	_	N. R. F. Z. P. F.	NUMBER OF DE VALUES IN ARRAY "B		VIPRE	318
	~	V.C.s	MUMBER OF TARULAR VALUES FOR CA	TEGORY 3, Y(F) PAPAMETERS	VIPRF	319
	٢	NDLD	NUMBER OF DECIREL VALUES STORED	IN ARRAY "DORVAL"	VIPRF	320
350	~	WHEBS	NUMBER OF PECIBEL VALUES IN AFR	AY "CBMERS"	VIPRE	321
	C	NMCDE1	NUMBER OF RECIPEL VALUES IN ARR	AY "CAMOD1"	VIPRF	322
	•	V. CDES	NUMBER OF DECIBEL VALUES IN AFR		VIPRF	323
	_	MPTS	NUMBER OF POINTS CALCULATED FOR		VIPRF	324
	C	MRSVAL	NUMBER OF TABULAR VALUES OF R			325
325			S	C	VIPRF	326
	^		CERECTION TO M(F) AND H(F) FCR		VIPRE	327
	C			S	VIPRF	328
	C		MINEEL CE DE NATITE IN VESTA ME		VIPRF	329
	_		MUMBER OF DE VALUES IN ARRAY WE		VIPRF	330
330	_		NUMBER OF DE VALUES IN ARRAY WE		VIPRF	331
	0	11110	NUMBER OF DECIDEL VALUES IN ARR		VIPRE	332
	0	N1A7C	NUMBER OF DECIPEL VALUES IN ARP		VIPRE	333
	-	N1F15	NUMBER OF DEGIREL VALUES IN AFR		VIPRF	334
7.75	-	N1F15	NUMBER OF DEGIBEL VALUES IN ARR		VIPRF	335
3.35	-	11114	NUMBER OF PECIPEL VALUES IN ARR		VIPRF	336
			NUMBER OF CECIPEL VALUES IN AFR		VIPRE	337
	П	N2013	NUMBER OF PECIPEL VALUES IN ARR		VIPRE	338
	C	N2 47D	NUMBER OF OFCIPEL VALUES IN ARR		VIPRE	379
71.0	0	N2F15	NUMBER OF DECIDEL VALUES IN ARR		VIPRF	340
3 7 0		N2F15	NUMBER OF DECISEL VALUES IN ARR		VIPRF	341
	C	N2F4	NUMBER OF DECIPEL VALUES IN ARR		VIPRF	342
		5 Z = 111	MONTER OF LEGISTE ANTOIS IN MAK	with Facility	VIPRF	343

			74/74	OPT = 1		TN 4.5+414	08/16/77	13.11.28
	С	<b>PEAK</b>	MAYIMU	M OF Y(F) FOR SPECIF	IFD CATEGORY		VIPRE	344
				2	2217 177120011		VIPRE	345
345	C	PEN	MEXIMU	M OF P(F), PSF. /HZ.			VIPRF	346
	C	PENDA		M OF P(F) , D3.			VIPRE	347
	C	PI		NT = 3 . 14159265			VIPRE	348
	r:	FNCRM		AV. PRESSURE AT ALTIT	UDE/AV. PRESSU	RE AT SEA LEVEL AL		349
	_	rsc		OF PRESSU			VIPRF	350
3=0	C	R		E DENSITY			VIPRE	351
	C	REX		YNOLES NUMBER AT DIS	TANCE X		VIPRE	352
	•		Y				VIPRE	353
	(	RNCPH	RATIO:	AV. DEMSITY AT ALTITU	DE/AV.DENSITY	AT SEA LEVEL ALTI		354
	C	RS		VALUE FOR DISTANCE F			VIPRE	355
3 = =	r				S		VIPRE	356
	C	PSMAX	MAX. VA	LUE OF P GOVERED BY		JLAR DECTREL VALUE		357
	C			5		,	VIPRE	358
	C	RSVALS	ARRAY	FCR STOPING TARULAR	DECIBEL VALUES	S USED WHEN CALCUL		359
	C			H(F) AND CORRECTION			VIPRE	360
360	C		0			S	VIPRE	361
	0	SAHI	SET FO	UAL TO FORM FACTOR, H	F RCLL-OFF FOR	R S(F) OF SPEC.FLI	SH VIPRE	362
	C	SALO		WAL TO FORM FACTOR, L				363
	C	SBHI		WAL TO SLOPE FACTOR,				364
	•	SPLO		UAL TO SLOPE FACTOR,				365
TEE	•	SPETD		S (F)/S (F) ' FOR CAL				366
	C			ET M BT M	BT M		VIPRE	367
	C		VALUE	FOR PHEMAX			VIPRF	368
	C	STELTA	VALUE	OF S (F) AT FMINGE			VIPPF	369
	-			PŢ			VIPRF	370
370	^	SFZHI	SET FO	UAL TO LOCATOR FRED.	, HIGH FREG. ROL	L-OFF, FOR S(F)	VIPRF	371
	•			C.FLIGHT FHASE			VIPRE	372
	C	SETLO	SET FO	UAL TO LOCATOR FREQ.	, LOW FREG. ROL	L-OFF, FOR S(F)	VIPRF	373
	-			C. FLIGHT PHASE			VIPRF	374
	C	SICH	AFPAY	FOR STORING VALUE 0	OR VALUE 1, DE	NOTING LOW-FREG. AN	VIPRE	375
375	C		HIGH-F	RED. ROLL-CFF, RESP., W	HEN CALC. L(FI	-M(F)-H(F)	VIPRE	376
	C	SOUND	AFFOY	FOR STOPING TABULAR	VALUES FOR VEL	LOCITY OF SOUND	VIPRF	377
	C	SPEAK	SET FO	UAL TO MAXIMUM VALUE	OF S(F) FOR	SPEC.FLIGHT PHASE	VIPRF	378
	C	SXFI	CEL EU	UAL TO MORM. FRED . RAT	IO, HIGH FRED.	ROLL-OFF FOR S(F)	VIPRF	379
	C		UE SEE	C.FLIGHT PHASE			VIPRF	380
300	^	SXFO	SET EU	UAL TO MORY . FRED . RAT	IO, LOW FREC.	ROLL-OFF FOR S(F)	VIPRF	381
	0			C.FLIGHT PHASE			VIPRE	382
	•	T	INEUL	VALUE FOR AIRCRAFT P	LATE THICKNESS	5	VIPRF	383
	C			ACTOF, HIGH FRED. ROLL				384
	C	TAKALC	E CEM E	ACTOF, LOW FRED. ROLL	-OFF, FOR S(F)	OF TAKE-OFF FLIGHT	VIPRE	385
SEE	0			FACTOR, HIGH-FRED. ROL				386
	C			FACTOR, LOW-FRED. ROL				387
	^			M VALUE OF SPECIAL F				388
	C			RED. FATIO, HIGH FREQ.				389
	C	TVKXTL		RED. HATIO, LOW FRED.				390
300	C	16VHI		ACTOR, HIGH FRED. ROL	L-OFF, FOR S(F)	OF LOW FREC.	VIPRF	391
	0			TURBULENCE PHASE			VIPRF	392
	^	TEEHI		FACTOR, HIGH FRED . ROL	L-OFF, FOR S(F)	FOR LOW FREG.	VIPRE	393
	_			THRUNTENCE			VIPRF	394
	C	LDEC		FRED. OF HIGH FRED.		ION OF S(F) FOR	VIPRF	395
ZOE	r.			ER. ATMOS. TURBUL ENCE			VIPRE	396
	•	TEREF	VALUE (	REFERENCE) OF S(F) A	T FREC=F . USE	WHEN CALC. MAXIM	UM VIPRE	397
	C				0		VIPRE	398
	r			CF S(F) AT FRED. = TBF			VIPRF	399
	^	TICLEN	LINGTH	OF TICK MARK ON RIG	HT HAND Y AXIS	S OF PLOT	VIPRF	400

		7	4/74	OPT =1	FTM 4.5+414	08/16/77	13.11.28
4 - 6	0 -	MCa	A DD AV	ECO STABING VALUES A	F RETA AND RETA! FOR L(F),M(F) A	N VIERE	401
416	0 7	M C	HARTE	ISED WHEN CALCULATING	L(F)-M(F)-H(F) TRANSFER FUNCTIO	N VIPRE	402
	СТ			BEIN' FOR P(F)	City-itty itty industrial	VIPRE	403
	r			STREAM VELCTITY		VIPRE	404
				SE KINEMATIO VISCOSIT	Y	VIPRE	405
4 - =					F K USED WHEN CALCULATING F' FOR		406
4	,	ALK	Arra.	TEC TIMENT VIED S	C	VIPRE	407
		TSCOS	APPAY	END STOPING TARULAR	VALUES OF AVERAGE KINFMATIC VISC		408
		NCRM	RATIO	AV. KINEMATIC VISCOST	TY AT ALTITUDE/AV. KINFMATIC VISC	O VIPRE	409
				ALEVEL ALTITUDE		VIPRE	410
41.				VALUE FOR TOUTPMENT	WEIGHT	VIPRE	411
4 1.					VALUES OF EQUIPMENT WEIGHT USED	W VIPRF	412
	,		COLCII	ATING F' FOR H(F)		VIPRE	413
	r					VIPRF	414
	r 4	E MAX	MAYTM	IN VALUE OF SOUTSMENT	WEIGHT, WE, FOR TAPULAR DECIFEL	VIPRE	415
415	·			S STORED IN ARRAY"WES		VIPRF	416
a I.	r +	F100	AFEAV	ECS STORING DECTRE	VALUES CORRESPONDING TO FOUIP. WE		417
		11.0	HE TO	TOURS - USED WHEN CA	LC. CORRECTION TO MAXIMUM OF H(F)	VIPRE	418
	C +		AECAV	ECO STORING DECTRE	VALUES CORRESPONDING TO EQUIP. WE	I VIPRE	419
		1011	HE TO	10001 BS - USED WHEN O	ALC. CORRECTION TO MAXIMUM OF HE	) VIPRE	420
1.50	C k	ICET!	AFFAY	ECS STOPING DECIRE	VALUES CORRESPONDING TO EQUIP.WE	I VIPRE	421
r 50	r	(C - , C )	HE TO	FORMING - USED WHEN O	ALC. CORRECTION TO MAXIMUM OF HE	) VIPRE	422
				TY OF AIRCRAFT PLATE		VIPRE	423
				NOF X , X OR X	THE CANADA	VIPRF	424
			1 1 1 1	E PT TL		VIPRE	425
1.05	0	AXIS	LENCT	H CE X AXIS OF PLOTS		VIPRE	426
4 25		ET	DT FT	STANCE FROM THE LEADI	NG EDGE OF THE FUSELAGE AFRODYNA		427
				LE TO THE WING CHORD		VIPRE	428
	S S			H OF LOGARITHMIC CYCL		VIPRE	429
					IG FEGE OF THE FUSELAGE AEROCYNAM		430
1.70	,			LE TO THE WING CHORD		VIPRF	431
430	r >	FERNY	VEEVA	ECD STORTED THE MAY	MUM VALUES OF L(F), L (F), M(F) AN		432
	· · · · ·		HERMI	100 3100103 TH 1832	2	VIPRE	433
			TEARC	ELE EUNOTTONO HOEN WE	EN CALCULATING L(F)-M(F)-H(F)	VIPRE	434
	· ·				ECTED FOR W ,W AND R	VIPRE	435
475	r	(HFI.CF	EDITE	OF VALUE OF ACT TORE	E S S	VIPRE	436
4		CHEHI	NCEN	EDEN EATTH . HTGH-EREN.	ROLL-CFF, H(F) OF CUPPENT FLIGHT		437
		CHELC	MCDN.	EDEO PATTO I OW-EREO.	ROLL-OFF, H(F) OF CURRENT FLIGHT	P VIPRE	438
		HENAX	MAYTM	IN VALUE OF HE BEFO	DRE CORRECTION	VIPRF	439
		CHT	SET E	OUAL TO NORM - FRED - RAT	10, FIGH-FRED. POLL-OFF, FOR SPEC. Y		440
446		VI ECCE	MAYTM	UM VALUE OF L(F) CORE	PECTED FOR X	VIPRE	441
400	r		- FAI	0. 1450. 0. 51. 7 0	E	VIPRE	442
	C \	CLEHI	NCEN.	FRED.FATIO, HIGH-FRED.	ROLL-CEE.FOR L(F)	VIPRF	443
				FRED. RATIO, LOW-FRED.		VIPRF	444
				UM VALUE OF L(F) BEFO		VIPRE	445
115		LL.	SET E	OLAL TO NORM FRED PAT	TIO, LOW-FRED. ROLL-CFF, FOR SPEC. Y	F VIPRF	446
800		(LOFCE	MAXIM	UM VALUE OF L (F) AFT	FR CORRECTION FOR X	VIPRE	447
	r		-	2	E	VIPRF	448
	· ·	(LZEHT	NCEN.	FREO. PATIO, HIGH-FREO.	ROLL-CFF.FOR L (F)	VIPRF	449
	_	- 11			2	VIPRE	450
450	r	XI 2FI C	MCEN.	FRED. PATIO, LOW-FRED.	ROLL-CFF.FOR L (F)	VIPRF	451
4:1	_	a F C L F (			?	VIPRF	452
		XI SEMY	MAYTH	UP VALUE OF L (F)		VIPRE	453
	_		1	2		VIPRE	454
	r.	YMAKNE	MACH	NC. OF CURRENT AIRCRA	AFT FROFILE ANALYSIS	VIPRE	455
455	C	MEDCE	MAYTH	TIM VALUE OF MEL CORE	RECTED FOR "WS" AND"RS"	VIPRE	456
M 7 D	r :	XMEHI	NCFM.	FRED. RATIO, HIGH FRED.	ROLL-CFF, FOR (F)	Albke	457

		74/74	OPT = 1		FTN 4.5+414	08/16/77	13.11.28
	C YM	ELO NORM-E	RED. FATIO, LOW FRED.R	OLL-OFF.FOR	1(F)	VIPRE	458
			W VALUE OF M(F)	,		VIPRE	459
	r yp		RED. PATIO. HIGH-ERTQ.R	OLL-CFF. FOR	?(F)	VIPRE	460
460	C XT	management Co.	"L" DISTANCE FROM TH			VIPRF	461
4.0	n		MAMIE PROFILE TO THE			VIPRF	452
	C XA	AL X CCC	POINATE OF LOWER LEFT-	HAND CORNER	OF INFO.LINE PLT ON		463
	C	DECT I	Y DISSPLA SUR-ROUTINE	"RLMESS"		VIPRE	464
	r xx		G, REAL VASIABLE			VIPRF	465
4 55			RED. FATIO, HIGH FREQ. R				466
			RED. FATIO, LOW FRED. R				467
			RED. RATIO, HIGH FRED. R				468
			RED. FATIO, LOW FRED. R	COLL-OFF, FOR	L(F) CONSTANT VALU		469
	. C X1		IG VARIABLE			VIPRF	470
470	r v2		NG VARIARLE			VIPRE	472
	r X3		NE VARIARLE			VIPRE	473
			OF Y AXIS ON PLOTS			VIPRE	474
			SIZE , Y PATA UNITS/INC	H FOR PLOT Y	AXIS	VIPRE	475
475	~ YV		POINATE OF LOWER LEFT-			VIPRF	476
	C		Y DISSPLA SUB-ROUTINE			VIPRF	477
						VIPRE	478
						VIPRE	479
						VIPRE	480
460			R(150), DECREL(150), DE			VIPPF	481
			T(E), AMAKNO(S), ALPHA(4			VIPRF	482
			1F4(41), NP2F4(41), NB1F			VIPRF	484
	71	MENSION DO	1F16(55),NP2516(41),NB 1A70(41),NP2A7N(41),NB	31111(41),056	20111(41)	VIPPF	485
4 95		MENCION ME	(14), VALY (14), C1AAWE	(11) -C1 AMME (	11)	VIPRE	486
4 1			7FF (29), FORIHF (43), DBR			VIPRE	487
			1000(7),WE50UG(9),DBMF			VIPRE	488
			(4) .XFFRMX (4) .TWOR (4)		,HILC(4),SIGN(4)	VIPRE	489
			TUD (61) , AVP (61) , AVDEN			VIPRE	490
100	CI	MENSION C3	WE (12), C3AYMX (10), C3A	AP (10), 03AXP	(1C),C3BE(1D),	VIPRE	491
	103	PX(11), 03P	RP(10), C3RXP(10), C3RYM	1X (10), C3PAP	(10), C3PA(10),	VIPRF	492
	203	1P(12)				VIPRF	493
						VIPRF	494
				TEL TTL CATCO	CV TITNE 4471	VIPRF	495
405	CC	PMCN/PFLCT	T/H, XMAKNC, X, RS, WE, WS,	ALLIE CALCE	VOTED VAVIC	VIPRE	497
			LANE(3),LXNAME(4),LYNA ITF1,TICLEN,X1,X2,X3,			VIPRF	498
	. 2XA	(13,5115,5	11, 110, 110, 11, 12, 13,	4, 11, 11, 11, 11, 11, 11, 11, 11, 11, 1	,1 101 21 , 122 4 11	VIPRE	499
	rn	MMCNIKUES	/FN, XLFMAX, FZN, XL ?FMX	PUFMAX . XFT .	XTL.FCMOVF.	VIPRE	500
500			1, CBMC01(100), NMODF2,			VIPRF	501
200			ANDL, IBUFET, ITAKOF, IL			VIPRF	502
						VIPRF	503
						VIPRF	504
			29/, 9F7PF/1.745,1.150,			VIPRF	505
505			0.492, 6.485, 0.470, 0.45			VIPRF	506
			0.4164,0.4118,0.4072,0	1.4026, 0.3981	U, U. 3954, C. 3888,	VIPRE	507 508
	30.	3842,0.379	6,0.375/			VIPRF	509
		TA COUNTY	0 1 25 1 50 0 75 4 0	4 25 4 52 4	75 2 0 2 25 2 5n	VIPRE	510
F 4 C			0.,0.25,0.50,0.75,1.0				511
510	17.	-0.15 0.16	,4.0,1.5,5.0,5.5,6.0,7 .C,17.0,18.],19.0,20.0	1.21.0.22.0.	23.0.24.0.25.4.26.11		512
		.0,28.0,29		, , , .	, , , ,	VIPRE	513
	027	,,				VIPRF	514

	PROCRAM	Albsk	74/74	0PT=1	FTN 4.5+414 0	8/16/77	13.11.28
		DATA		-2.012.60	,-3.30,-3.90,-4.40,-4.80,-5.20,-5.50,	VIPRF	515
515					-7.30,-8.00,-8.50,-9.0,-9.5,-10.0,-10.8,	VIPRE	516
215					0,-13.70,-14.00,-14.40,-14.60,-14.90,	VIPRE	517
					.85,-15.95,-16.0,-16.10,-16.20,-16.30,	VIPRE	518
				·-16.60 ·- 15		VIPRE	519
		4 10	140,-10,50	,-10.00, 15	.07, 1007	VIPRE	520
520		DATA	FORTHE /	5013800	3550 3350 3200 3100 2950 2800	VIPRE	521
200					2400.,2320.,2200.,2100.,2000.,1950.,	VIPRE	522
					1600.,1580.,1550.,1510.,1480.,1450.,	VIPRE	523
					1320.,1305.,1285.,1268.,1256.,1250.,	VIPRE	524
				232.,1225.,		VIPRE	525
F 25			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, 1		VIPRE	526
						VIPRE	527
		DATA	WEK /2.5.	3.8.5.0.7.5	,10.0,15.0,20.0,30.0,40.0,60.0,80.0,100.0,		528
			0,200.0/	0.0,,	, 20000	VIPRE	529
				.0.99.0.00.	0.95,0.92,0.87,0.84,0.76,0.73,0.675,	VIPRE	530
570				.575,C.550/	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	VIPRE	531
		1000	, , .	,		VIPRE	532
		DATA	LMERS/20	AL. DYMERSID.	11/	VIPRE	533
					-15.0, -13.7, -12.4, -11.2, -10.2, -9.2, -8.1,	VIPRE	534
					,-3.9,-3.2,-2.8,-2.2,-2.0,-1.7,-1.2,	VIPRE	535
575					0.30,-0.20,-0.10,0./	VIPRE	536
			., , .	, ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	VIPRE	537
		CATA	NC1//11/	.CXC1A/20.0	/, XINC1A/10.C/	VIPRE	538
					3,1.57,1.62,1.70,1.75,1.77,1.82,1.86,1.92/	VIPRE	539
					-2.7,-2.8,-3.7,-4.0,-4.5,-5.2,-5.5,-6.5/	VIPRE	540
540				.,,	,,,,,,,,	VIPRE	541
		DATA	NWE 100/7	1,DWE 100/15	. 0/	VIPRF	542
					,-2.0,-2.5,-3.75,-4.5/	VIPRE	543
				, PW=1K/15C.		VIPRE	544
		DATA	WEICCO/-	4.5,-10.0,-	12.6,-14.4,-15.2,-16.1,-16.6/	VIPRE	545
505				, DWEEK/500.		VIPRE	546
		CATA	4 FF5000/-	16.6,-17.65	,-18.9,-19.7,-20.15,-20.6,-21.0,-21.25,	VIPRE	547
		1-21	FC/			VIPRE	548
						VIPRE	549
		DATA	NEDE/41/	,DTL DD8/1.0	/	VIPRE	550
550		CATA	TEBVEL/	0.,-0.02,-0.	15,-0.10,-0.20,-0.22,-J.30,	VIPRE	551
		1-0.4	44,-0.53,-	-0.60,-0.90,	-1.00,-1.20,-1.40,-1.60,-1.90,-2.20,	VIPRF	552
		2-2.	70,-3.01,-	-3.50,-4.00,	-4.50,-5.10,-5.80,-6.60,-7.50,-8.30,	VIPRF	553
					90,-12.70,-13.50,-14.73,-15.00,	VIPRF	554
		4-15	70,-16.50	,-17.20,-17	.90,-18.50,-19.10/	VIPRE	555
5.55						VIPRE	556
					,33.0,43.0,60.0,90.0,120.0,160.0,200.0/	Albee	557
					·5,11·0,10·7,10·û,9·6,9·3,7·5,6·0/	VIPRE	558
				300,0.285,0.	278,0.264,0.257,0.240,0.235,0.220,	VIPRF	559
			13,0,5001		THE FACE OF THE PARTY AND ADDRESS OF THE PARTY AND ADDRESS.	VIPRE	560
560				500,0.460,0	.445, 0.406, 0.385, 0.350, 0.332, 0.295,	VIPRE	561
			80,0.250/			VIPRF	562
				900,1.907,1	.909,1.918,1.920,1.936,1.940,1.960,	VIPRE	563
			70,2.001/			VIPRE	564
					.5, 11.2, 10.2, 8.0, 7.4, 6.3, 6.1, 6.0/	VIPRE	565
EEE				120,0.130,0.	140,0.175,0.190,0.225,0.235,0.265,	VIPRF	566
			83,0.300/			VIPRF	567
				111, [.167,]	.190, J.260, C.280, G.350, O.375, C.435,	VIPRF	568
			63,0.500/			VIPRF	569
					,1.65,1.69,1.78,1.81,1.89,1.95,2.00/	VIPRE	570
F70		PAT	1.38 Xr \0.	, //0, [.625,]	.599,0.524,0.494,0.419,0.400,0.333,	VIPRF	571

10.12   10.12   10.13   10.1		PROFREE	VIPRF	74/74	OPT=1	FTN 4.5+414 0	8/16/77	13.11.28
			4 - 2	99 C 3EC/			VIPRE	572
DATA TYPAPY1, 40,1,46,1,53,156,158,164,164,168,1773,175,1.807 VIPRF 575  CATA ALTILOY 0.,5500.,1030.,1050.,2000.,2500.,3500.,3500.,4000., 4000., 4000., 4500., 5500., 5500., 5500., 7500., 8000.,3500., 4000., 4000., 4000., 4000., 4000., 4000., 5500., 1000.,5500., 7500., 8000., 8500., 1000., 4000., 4000., 4000., 4000., 4000., 4000., 4000., 4000., 4000., 15000.,15000.,15000.,15000., 1000., 1000., 1000., 15000.,15000., 1000., 1000., 1000., 15000., 15000., 10			10.2	A CZDA/4 0		0.0.36.0.30.0.20.1.175.1.120.0.110.0.10/		573
CATA ALTIUC/ 0.,500.,1203.,1500.,200C.,250C.,200C.,350C.,400C., VIPRF			DAT	A CZBACIA	40.1.46.1.	51-1-56-1-58-1-64-1-68-1-73-1-75-1-80/		574
* 4500., 5510., 5500., 6510., 7000., 7500., 8000., 8000., VIPRF 578 (17000., 18700., 18700., 18700., 20100., 20100., 20100., 23000., 23000., 24000., 25000., VIPRF 578 (2600., 2700., 28000., 22000., 23000., 24000., 25000., VIPRF 578 (2600., 2700., 28000., 26000., 26000., 22000., 33000., 40000.,			UAI	P (SERENI	40,1.40,1.	90,1190,1190,11004,11000,110.0,110.0,110.0	VIPRE	575
* 4500., 5510., 5500., 6510., 7000., 7500., 8000., 8000., VIPRF 578 (17000., 18700., 18700., 18700., 20100., 20100., 20100., 23000., 23000., 24000., 25000., VIPRF 578 (2600., 2700., 28000., 22000., 23000., 24000., 25000., VIPRF 578 (2600., 2700., 28000., 26000., 26000., 22000., 33000., 40000.,	- 7-		CAT	A ALTTIC	0 500 10	01-1500-2000-2500-3000-3500-4000-	VIPRE	576
# 900C., 9500.,1030C.,11030.,12030.,12030.,14001.,1500C.,1600C., VIPRE	5/5		* 45	60 - 5000-	- 5500 - 6	730 6500 7000 7500 8000 8500	VIPRF	577
#17300.,18730.,190C.,2010.,2010.,2010.,2010.,2010.,2010.,200C.,3400C., VIPRE 500 (%27010.,280C.,29010.,3000.,31000.,3100C.,3400C., VIPRE 510 (%2600.,350C).,370CC.,7010.,380C.,4000.,4000.,4000.,4000.,4000.,4000C.,400C			# 90	00 - 9610-	.1000011	0001200013000140001500016000	VIPRE	578
### \$6000, 37010, 37000, 31000, 31000, 32000, 33000, 370000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 37000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 370000, 3700000, 370000, 370000, 370000, 370000, 3700000, 3700000, 3700000, 3700000, 3700000, 37000000, 37000000, 370000000, 370000000, 370000000000			*171	00 18000.	. 19000 27	0102100022000230002400025000.,	VIPRF	579
### ##################################			¥260	00 - 27010-	.28000 29	0103100031000320003300034000	VIPRF	580
#44000.,45000.45000.47000.,47000.,47000.,40000.7   VIPRE 522   DATA NUP/2116.2,2078.3,2340.9,2004.0,1967.7,1931.9,1896.6,1861.9, VIPRE 524   **1877.7,1790.6,1770.8,1728.1,1595.9,1664.2,1652.9,1602.2,1571.9, VIPRE 524   **1542.1,1512.7,1483.8,1455.3,1339.7,1345.9,1293.7,1243.2,1154.3, VIPRE 526   **1542.1,1512.7,1483.8,1455.3,1399.7,1345.9,1293.7,1243.2,1154.3, VIPRE 526   **765.3,751.6,719.1,67.8,657.6,628.4,600.3,573.3,547.2,552.1,498.0, VIPRE 526   **767.8,266.7,254.1,242.2/ VIPRE 527   **276.8,266.7,254.1,242.2/ VIPRE 528   **276.8,266.7,254.1,242.2/ VIPRE 528   **276.8,266.7,254.1,242.2/ VIPRE 528   **276.8,266.7,254.1,242.2/ VIPRE 529   **2261.7.02.,2249E-02.,2211E-02,2137F-02,2334E-02, VIPRE 529   **2261.7.02.,2249E-02.,2211E-02,2137F-02,2102F-02, VIPRE 529   **2261.7.02.,2249E-02.,2211E-02,2137F-02,2102F-02, VIPRE 529   **2261.7.02.,2249E-02.,2150E-02,2137F-02,2100E-02, VIPRE 529   **2261.7.02.,2249E-02.,1275E-02,1778E-02,130EF-02,2100E-02, VIPRE 529   **2261.7.02.,2249E-02.,1275E-02,1778E-02,130EF-02,1100F-02, VIPRE 529   **2261.7.02.,2249E-02.,1275E-02,1778E-02,130EF-02,1100F-02, VIPRE 529   **2261.7.02.,1275E-02.,1275E-02,.1778E-02,.1107F-02, VIPRE 529   **1611.7.02.,1277E-02.,1275E-02,.1778E-02,.1107F-02, VIPRE 529   **1611.7.02.,1277E-02.,1275E-02,.138E-02.,1147E-02,.11663F-02, VIPRE 529   **1611.7.02.,1277E-02.,1275E-03,.7525E-03,.7215E-03,.7525E-03, VIPRE 529   **1611.7.03.,1274E-03,.7525E-03,.7215E-03,.7215E-03, VIPRE 529   **1611.7.03.,1274E-03,.7525E-03,.7215E-03,.7215E-03,.7215E-03, VIPRE 600   **1077.1.1077.9.1074.7.1073.4.1038.4.1088.7.1088.7.1088.7.1088.9.7.1089.0, VIPRE 600   **1077.1.1077.9.1074.7.1073.4.1038.4.1081.7.1088.7.1078.4., VIPRE 600   **1077.1.1077.9.1074.7.1073.4.1074.9.1088.7.1088.7.1078.4., VIPRE 600   **1077.1.1077.9.1074.7.1073.4.1074.9.1088.7.1078.4., VIPRE 600   **1077.1.1077.9.1074.7.1073.4.1074.9.1088.7.1088.7.1078.4., VIPRE 600   **1077.1.1077.9.1074.7.1073.4.1074.9.1088.7.1088.7.1078.4., VIPRE 600   **1077.1.1077.9.1074.9.1088.7.1088.7.1088.7.1088.7.1088.7., VIPRE 60	E 90		¥750	00 - 36070-	.3700038	7763900040000410004200043000.,	VIPRE	581
DATA AVP/2116.2,2078.3,2340.9,2004.0,1967.7,1931.9,1896.6,1861.9,   VIPRF   548   1827.7,1779.0,61776.0,81728.1,1595.9,1664.2,1652.9,1602.2,1571.9,   VIPRF   548   1542.1,1512.7,1493.8,14563.3,39.7,1343.9,1243.7,1243.2,1154.3,   VIPRF   548   1542.1,1512.7,1493.8,14563.3,39.7,1343.9,1243.2,1154.3,   VIPRF   548   578.6,263.4,600.3,573.3,3547.2,522.1,498.0,   VIPRF   558   726.8,366.7,254.1,242.2/   VIPRF   528   7276.8,366.7,254.1,242.2/   VIPRF   529   VIPR	2110		*440	0045000.	.45700 47	000.48000.49000.,50000./	VIPRF	582
1827.7,1794.0,1760.8,172.1,1598.9,1664.2,1632.9,1602.2,1571.9,			440	,	,		VIPRF	583
#1877.7,1794.0,1776.8,1728.1,1599.9,1664.2,1632.9,1602.2,1574.3, VIPRF			DAT	A AVP/2116	.2.2078.3.	2340.9.2004.6,1967.7,1931.9,1896.6,1861.9,	VIPRF	584
# 1542.1,1512.7,1443.,1455.3,1390.7,1345.9,1293.7,1243.2,11543.7, VIPRF			*182	7.7.1794.0	.1750.8.17	28.1,1595.9,1664.2,1632.9,1602.2,1571.9,	VIPRE	585
#1146.c, 1101.1,1066.8,1013.9, 972.5, 932.4, 857.7, 856.3, 865.3, 877.7, 856.3, 877.7, 856.3, 877.7, 856.3, 877.7, 856.3, 877.6, 878.3, 877.7, 878.3, 877.7, 878.3, 877.7, 878.3, 877.7, 878.3, 877.7, 878.3, 877.7, 878.3, 877.7, 878.3, 877.7, 878.3, 877.7, 878.3, 877.7, 878.3, 877.7, 878.3, 877.3, 878.1, 323.2, 308.0, 293.6, VIPRF 598.   #276.8, 766.7, 754.1, 242.2/  CATA AVDENS/, 2513E-02, 2467E-32, 2422E-02, 2377E-02, 2334E-02, VIPRF 599.   #1608E-02, 12467E-02, 2211L-02, 2177E-02, 2137F-02, 2100E-02, VIPRF 599.   #1608E-02, 1382E-02, 1495E-02, 1932F-02, 1900E-02, VIPRF 599.   #1608E-02, 1382E-02, 1495E-02, 1932F-02, 1932F-02, 1900E-02, VIPRF 599.   #1608E-02, 1382E-02, 1495E-02, 1495E-02, 1497E-02, 1716E-02, VIPRF 599.   #1608E-02, 1497E-02, 1275E-02, 1718E-02, 1646F-02, VIPRF 599.   #1608E-02, 1497E-02, 1275E-02, 1718E-02, 1646F-02, VIPRF 599.   #1608E-02, 1497E-02, 1275E-02, 1497E-02, 1717F-02, 1107F-02, VIPRF 599.   #1608E-02, 1497E-03, 1497E-03, 1497E-03, 1497E-03, 1497E-03, VIPRF 599.   #1608E-02, 1498E-03, 1499E-03, 1499E-0	EPE		*154	2.1.1512.7	.1483.8.14	55.3,1399.7,1345.9,1293.7,1243.2,1194.3,	VIPRF	586
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#275.8,266.7,254.1,242.7/  CATA AWTENS/.2513E-C22467E-J22422E-022377E-022334E-02. VIPRF 592			+471	.7,452.4,4	31.2,411.0	, 391.7, 373.3, 355.8, 339.1, 323.2, 368.0, 293.6,	VIPRE	
CATA ANDENS/.2513E-C2,.2467E-J2,.242E-O2,.2377E-O2,.2334E-O2, VIPRF							VIPRE	
**2241F-02,22445-12,2211L-02,2173E-02,2137F-02,2127F-02, VIPRF	FON							
*.22011-02,.2249E-C2,.2211L-02,.213TF-02,.2137F-02,.2102F-02, VIPRF 594			CAT	A MULENSI.	25135-02, .	2467F-J2,.2422E-02,.2377E-02,.2334E-02,		
# .2067T-022C33E-721999E-021778E-02163E-021718E-02165E-021678E-021678E-021678E-021678E-021678E-021678E-021678E-021678E-021678E-021678E-021678E-021678E-021778E-021678E-021678E-021778E-021273E-021273E-021273E-021273E-021273E-021273E-021273E-021273E-021273E-039573E-039228E-038898E-03VIPRF 597			4.22	915-0222	49E- [2, . 2?	10L-02, .2173E-02, .2137E-02, .2102F-02,		
# 1,168E-02, 183FE-02, 170SE-02, 1774E-02, 1718E-02, 1663E-02, VIPRF 598			*.20	167E-02 20	33E-1219	995-02, .1965F-02, .1932F-02, .1900E-02,		-
**1011-12,:1959-122,:11305-02,:11388-02,:1147F-02,:1107E-02,**VIPRF **1148E-12,:1130E-12,:1235E-02,:1147F-02,:1107E-02,**VIPRF **1148E-123,:1107E-02,**1147F-02,:1107E-02,**VIPRF **1148E-123,:1107E-02,**0.***NESTEE-03,**0.***NESTEE-03,**0.***NESTEE-03,**NESTEE-03,**NESTEE-03,**NESTEE-03,**VIPRF **1148E-123,**1158E-03,**1158E-03,**NESTEE-03,**NESTEE-03,**VIPRF **1148E-123,**1158E-03,**1158E-03,**NESTE			* . 1	68E-02,.18	3FE- 02, . 1F	15E-02,.1774E-02,.1718E-02,.1663F-02,		
*:168B-C2,:1030E-C2,:9933E-03,:9577E-03,:9228E-03,:889CE-03, VIPRF	505		*.16	11F-02,.15	59E-02, . 15	08E-02,.1458E-02,.1411F-02,.1364F-02,		
*.15366-03,.8149E-73,.7853E-03,.7529E-03,.7215E-03,.6912E-03, VIPRF *.6621E-03,.6341E-03,.674E-03,.5818E-03,.5573E-03,.5338E-03, VIPRF 600 *.5113E-03,.4898E-03,.4692E-03,.4495E-03,.4306F-03,.4125E-03, VIPRF 600 *.3062E-03,.43986E-03/* VIPRF 600 *.3062E-03,.43986E-03/* VIPRF 600 *.3062E-03,.3786E-03/* VIPRF 600 *.3067E-03,.4398E-03/* VIPRF 600 *.3067E-03,.4398E-03/* VIPRF 600 *.3067E-03/*			*.1	18F-C2, . 12	77E-02,.12	30E-02,.1188E-02,.1147F-02,.1107E-02,		
**6621E-C3,-6341E-C3,-6274E-D3,-5918E-D3,-5938E-D3, VIPRF 600  **51136-C3,-4868E-C3,-4692E-D3,-4495E-D3,-4306E-D3,-4125E-D3, VIPRF 601  **36F2E-D3,-3786E-C3/  DATA SOUNC/1090-4,1090-3,1090-1,1090-,1089-8,1089-7,1089-0, VIPRF 601  **1077-F,1686-7,1085-5,1684-3,1083-1,1081-9,1080-7,1079-F,1078-4, VIPRF 601  **1077-F,1686-7,1085-5,1684-3,1083-1,1081-9,1080-7,1079-F,1078-4, VIPRF 601  **1077-1,1075-9,1074-7,1073-4,1069-6,1065-9,1052-1,1058-4,1054-5, VIPRF 601  **1011-8,1011-8,1007-8,1003-8, 999-7, 993-7, 993-1, 990-7, 988-2, VIPRF 601  **085-7,683-3,994-0,991-6,949-2,946-9/  **1037-7,1085-9,1047-1,1039-2,1035-4,1031-5,1027-5,1023-6,1019-7, VIPRF 601  **058-8,956-3,954-0,991-6,949-2,946-9/  **1037-7-03,-1625E-C3,-1631E-O3,-1526E-O3,-1543E-O3,-1570E-O3, VIPRF 611  **1397F-O3,-1625E-C3,-1631E-O3,-1526E-O3,-1695E-O3,-1724E-O3, VIPRF 611  **119F-O3,-1940E-C3,-1940E-C3,-1940E-O3,-1856F-O3,-1863E-O3, VIPRF 611  **119F-O3,-1940E-C3,-1940E-C3,-1940E-O3,-1856F-O3,-1863E-O3, VIPRF 611  **119F-O3,-1940E-C3,-1940E-O3,-1940E-O3,-2051E-O3,-210EE-O3, VIPRF 611  **2514F-O3,-2621E-C3,-2283F-O3,-2254F-O3,-2210EF-O3, VIPRF 611  **2514F-O3,-1940E-C3,-1940E-O3,-1940E-O3,-210EE-O3, VIPRF 611  **3125E-C3,-31165E-C3,-3283F-O3,-22554E-O3,-2278E-O3, VIPRF 611  **3125E-C3,-31165E-C3,-3283E-O3,-3310E-O3,-3351E-O3,-VIPRF 611  **3125E-C3,-377FE-L3,-394E-O3,-3306E-O3,-3407F-O3,-5530E-O3,-VIPRF 611  **3539E-O3,-377FE-L3,-394E-O3,-3310E-O3,-5717F-O3,-5984E-O3,-VIPRF 621  **5749F-O3,-577FE-C3,-6213E-O3,-6460F-O3,-6717F-O3,-6984E-O3,-VIPRF 621  **57			* . 1	CABE-02,.10	30E-12,.99	33E-03,.9577E-03,.9228E-03,.889CE-03,	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	
### ### ##############################			* . 9	536E-03,.81	AGE-13,.75	53E-03,.7529E-03,.7215E-03,.6912E-03,	- 1	
*.39F2E-03,.3796E-03/  DATA SOUND/1090.6,1090.4,1090.3,1090.1,1090.,1089.8,1089.7,1089.0, VIPRF 600  *1087.6,1086.7,1085.5,1084.3,1083.1,1081.9,1080.7,1079.5,1078.4, VIPRF 600  *1077.1,1075.9,1074.7,1073.4,1086.9,1065.9,1062.1,1058.4,1054.5, VIPRF 600  *1057.7,1086.9,1047.1,1039.2,1035.4,1031.5,1027.5,1023.6,1019.7, VIPRF 600  *1050.7,1086.9,1047.1,1039.2,1035.4,1031.5,1027.5,1023.6,1019.7, VIPRF 600  *1018.8,1011.8,1007.8,1003.8, 999.7, 995.7, 993.1, 990.7, 988.2, VIPRF 601  *085.7,983.3,984.8,978.3,975.9,973.3,970.9,968.5,966.0,963.6,961.1, VIPRF 611  *0528.8,956.3,954.0,951.6,949.2,946.9/  *1397F-03,.1625E-03,.1492E-03,.1543E-03,.1543E-03,.1570E-03, VIPRF 611  *1749E-03,.1775E-03,.1492E-03,.1694E-03,.1543E-03,.1724E-03, VIPRF 611  *1749E-03,.1775E-03,.1825E-03,.1826E-03,.1856F-03,.1883E-03, VIPRF 611  *1911E-03.1940E-03,.1969E-03,.1998E-03,.2051E-03,.210EF-03, VIPRF 611  *2163E-03,.2222E-03.2283E-03,.2346E-03,.2478E-03, VIPRF 611  *2263E-03,.31159E-03,.223E-03,.2346E-03,.2478E-03,.2978E-03, VIPRF 611  *2363E-03,.3775E-03,.2695E-03,.3306E-03,.3407E-03,.3512E-03, VIPRF 611  *36739E-03,.3775E-03,.3208E-03,.3306E-03,.3407E-03,.3512E-03, VIPRF 611  *36739E-03,.3775E-03,.3617E-03,.4066E-03,.4223E-03,.4387E-03, VIPRF 611  *36739E-03,.3775E-03,.3617E-03,.4066E-03,.5520F-03,.5530F-03, VIPRF 621  *45749F-03,.5776E-03,.6213E-03,.5118E-03,.5520F-03,.5530F-03, VIPRF 622  *5749F-03,.5776E-03,.6213E-03,.5118E-03,.5520F-03,.5530F-03, VIPRF 622  *5749F-03,.576E-03,.6213E-03,.5118E-03,.5520F-03,.5530F-03, VIPRF 622  *5749F-03,.576E-03,.6213E-03,.5118E-03,.5520F-03,.5530F-03, VIPRF 622  *5749F-03,.576E-03,.56213E-03,.5118E-03,.5520F-03,.5530F-03, VIPRF 622  *5749F-03,.576E-03,.56213E-03,.56450F-03,.6645			*.6	211-03,.63	41E-03,.6	74E-03,.5818E-03,.5573E-03,.5338E-03,		
DATA SOUNC/1090-6,1390-4,1090-3,1090-1,1090-,1089-8,1089-7,1089-0, VIPRE 600	600					92E-03,.4495E-03,.4306F-03,.4125E-03,		
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630	CATA	IF111/8H	F-111/, IA70/	74 A-7E/, IA13/7H A-13/	VIPRE	£30
£ .5 _					VIPRE	€31
	( 0 1 0	ISAKEL, I	PUFIT, ILAND, ITA	COF/SHSANDL, 2HPT, 7HLANDING, 7HTAKEOFF/	VIPRE	632
	[ 4 1 4	11Abb\SH.	18/		VIPPF	€33
	DATA	F T 4 = 444	-0.000		VIPRF	634
675	1 4 1 4	-1/3.141	50265/, IFATSH/6	HEINISH!	VIPRF	635
					VIPRE	E36
	ГАТА	N 4 5 1 1 1 1 4 1	FX1FL/1.52/		VIPRF	637
	00.74	CEAEL /	1 X 1 F 4 / 1 . 5 ? /		VIPRF	638
	1-15	DETER A	23 20 56 20	50, -2.80, -4.10, -5.40, -7.30, -9.80		639
64:	2-10	00,715.0	-47 00 -40 00	24.40, -22.10, -20.20, -19.10, -18.40,	VIPRE	640
	3-25	20 - 22 60	-10 60 -17 -20,-	18.90, -20.40, -22.90, -25.30, -26.00,	VIPRF	€41
	4 - C	109.30	-7.50, -6.80,	15.60,-14.00,-12.70,-11.30,-10.10,	VIPRF	€42
		10, 000	-/	-5.00, -5.31/	VIPRE	E47
	PATA	NOF4/61/	CX2F4/1.52/		VIPRF	644
F15	ΓΑΙΛ	LESEP 1	0 - 00 - 2 0	00, -4.00, -6.50, -9.70,-15.00,-26.00	VIPRE	645
	1-22.	1016.7	-13 30 -11 00 -	11.00,-11.30,-11.30,-12.60,-14.20,		646
	2-16.1	00,-18.80	-22 10 -70 60 -	25.90, -22.00, -19.10, -17.90, -17.30,	VIPRF	647
	3-17.8	4617.00	=19 B0 = 55 90 =	25.60,-19.00,-14.80,-11.00, -8.75,	VIPRF	€48
	4 -7.1	11F. 75	-4.60, -3.80,	-7 00 -19.00, -14.80, -11.00, -8.75,	VIPRE	E49
650		,,	-4.00, -3.00,	-3.30, 2.407	VIPRF	650
	ATA	11F1F/41	, NY 1F 1F /1. 375/		VIPRE	651
	ΓΔΙΛ	FE1E1E/	, ( = 00 -1 7	5, -2.80, -3.°0, -F.00, -6.00, -7.80	VIPRE	652
	1 -0-3	2511.10.	-13-75 -16 00 -	21.20, -25.40, -26.00, -25.60, -23.60,		653
	2-21.1	1118.3	-16.9016.25	16.10, -16.15, -16.90, -17.60, -18.70,	VIPRF	654
FFE	3-20.0	10 21.75.	-25.0025.80	25.70, -21.40, -19.30, -16.80, -15.40,	VIPRE	655
	4-14.	31 13 - 50 -	-12.22, -11.13,-	16.30 -0.504	VIPRF	656
		, , , , , , , , , ,	1,,	10.30, -9.50/	VIPRF	657
	DATA	N2F1F/41/	,DX2F15/1.373/		VIPRF	658
	CATA	PB2F15/ 0	.01.102.4	3, -4.25, -6.30, -8.80,-12.40,-18.60	VIPRE	659
6FC	1-26.0	017.00.	-13.0011.35	10.90,-10.75,-10.93,-11.10,-11.90,		660
	2-14.5	[ 16 . 57 .	-23.P324.0a	20.30,-19.10,-18.50,-18.40,-18.80,	VIPRF	661
	3-10.9	0 , - 25 . 3	-26.021.41	21.40, -19.80, -18.20, -17.20, -16.20,	VIPRF VIPRF	652
	4-15.7	C,-15.00,	-14.40,-13.99,-	13.4013.00/	VIPRE	663 664
				200 (0) 2000 (	VIPRE	665
FEE	CATA	N1516/55/	, DX1F1F/C. RE/		WIDDE	666
	PATA	C81F16/ 0	.0,41, -1.5	0, -1.40, -2.20, -2.60, -3.40, -4.20	VIPRE	667
	1 -5.0	L6.00.	-7.403.61	10-6012-3014-8018 RC -22 ED	VIPRE	668
	2-25.2	0,-25.90.	-23.1521.50	26.90 26.15 10.80 10.30 - 10.00	VIPRE	669
	3-18.4	1, -11.86,	-19.6018.50	18.6018.7519.0019.6020.20	VIPRE	670
670	4-21.4	0,-22.80,	-24.4J25.51	26.0026.2026.0025.8025.30	VIPRE	671
	5-23.9	1, - 41 . 20,	-19.30,-17.83,	10, -15.10, -14.10, -13.20, -12.30,	VIPRE	672
	€-11.6	[,-11.00/			VIPRF	673
	9121				VIPRF	674
675	CATA	M2F 16/41/	DX2F1E/1.1475/		VIDOE	€75
6 12	DATA	P=2F16/ 2	.0, -1.20, -2.5	ú, -4.30, -6.00, -8.20,-10.90,-15.00,	VIPRE	£76
	1-22.1	0, -25.0.,	-2J.75,-17.6u,-	17.1517.4821.6825.1625.cn.	VIPRE	677
	2-26.3	C, -25.9C,	-25.0123.30	21.9021.6122.7524.5025.60	VIPRF	678
	3-26.0	0,-25.80,	-24.1., -21.80,-	21.60, -21.80, -25.10, -25.00, -21.00,	VIPRF	679
6 5 6	4-1F.2	÷,-12.75,	-9.73, -7.31,	-5.43, -3.80/	VIPRF	680
Coll	D A 7 A	NAE 44			VIPRF	681
			,DX1111/1.7521		VIPRF	682
	1 A A	C 11111/ 1	1, .2[,7!	, -1.7C, -2.60, -3.75, -4.90, -6.0C,		€83
	3-7.5	, -0.6 ,	11.25,-13.6],-:	16.25,-20.00,-25.80,-26.00,-24.00,	VIPRF	684
	2-2	c, = 15.03.,	-10.80,-15.60,-	14.90,-14.40,-14.15,-14.70,-15.20,	VIPRE	€85

	P20CRAW VIPRE 74/74	OPT=1	FTN 4.5+414	08/16/77	13.11.28
5.85	3-16 20 -17 60	1.=19.90.=22.00.=26	.85,-26.20,-26.10,-25.20,-20.70,	VIPRE	686
262		,-14.00,-12.70,-1:		VIPRE	€87
		1/,0×2111/1.7621/	1.50, -10.50/	VIPRE	688
				VIPRE	689
	DATA DE2111/4	11-0.7		VIPRE	€90
	DATA NAATRAA	1 541175/1 15/1		VIPRE	691
Eat		/,nx1A7n/1.104/	2 0 - 7 00 - 7 00 - 5 00		692
			-2.20, -3.00, -3.90, -4.90, -5.80		
			6.60,-25.20,-25.80,-20.20,-16.40,	VIPRE	693
			.80,-11.60,-11.65,-11.90,-12.50,	VIPRF	694
			6.00,-25.80,-23.00,-15.80,-13.40,	VIPRE	695
662	4-11.00, -9.50	, -9.35, -7.76, -6	0.90, -6.00/	VIPRE	696
				VIPPF	€97
		1,0X2A7D/1.104/		VIPRE	€98
	DATA DESATE	0.0, -1.50, -3.73	-6.40, -9.50, -13.00, -21.70, -21.70	, VIPRF	699
	1-16.00,-11.15	,-10.00, -9.50, -	3.72,-10.20,-11.20,-12.50,-14.60,	VIPRF	700
700	2-17.70,-22.00	,-25.90,-25.70,-2	2.30,-18.10,-16.30,-14.30,-13.75,	VIPRE	701
	3-13.40,-13.60	,-13.98,-14.25,-1	5.60,-19.70,-26.30,-20.00,-13.00,	VIPRE	702
	4-10.30, -7.80	, -5.00, -3.30, -	1.80,66/	VIPRE	703
				VIPRE	704
	CATA 11410/41	17.0X1A10/1.315/		VIPRE	705
7.5	CATA C51410/	0.0, -1.09, -2.38	-4.61, -5.68, -7.54,-16.12,-13.40	, VIPRF	706
			5.29,-13.15,-11.70,-10.63, -9.68,	VIPRE	707
			3.04, -8.11, -8.34, -9.68, -9.32,	VIPRE	708
			5.80,-20.90,-13.68, -9.24, -6.02,	VIPRE	709
		,32, .98,		VIPRE	710
712		/, 0x2A1C/1.315/		VIPRE	711
1 13	DATA CEZATON			VIPRE	712
	DF - C - C - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2	1 00,		VIPRE	713
				VIPRE	714
	NRCVAL = L 3			VIPRE	715
715		TEMAXPE=101330.0		VIPRE	716
17.	FMINHF=1[. SF			VIPRE	717
	FMINGE=5.5 F			VIPRE	718
		TRSMAX=30.0 SWEMA	/-Encc 0	VIPRE	719
	YPF=0.010 *IF		-9000.	VIPRE	720
7.00		PPLFHI=0.5 3YXLFLO	2 0 CYVI FUT - 0 F	VIPRE	721
720				VIPRE	722
		MEHI=250.0 RRMFLO	=0.3 YEMPH1=0.5		723
	XMFLC=2.5 3X			VIPRF	724
		HEHI=0.3 BXXHELO=2			
			1.0 \$ALFL0=1.0 \$ALFHI=1.0	VIPRE	725
725	AMFLO=1.0 TAN			VIPRF	726
			=1.80 \$XL2FHI=9.555	VIPRF	727
	ALZELC=1.6 E			VIPRF	728
		\$AHFMAX=-121.0		VIPRE	729
	C10XLC=2.0 **	CINYHI= 0. F SCIAPLO	=0.2 \$C1ABHI=0.2 \$C1AAL0=1.0	VIPRE	730
730		01AFN=25.0 301AMAX		VIPRE	731
	CZAXLC=1.5 TI	CZAXHI=J.5 BCZABLO	=0.2 4C2ABHI=0.2 3C2AAL0=1.0	VIPRF	732
	(2AAHI=1.7 \$	C2AFN=43.3 \$C2AMAX	=13.C	VIPRE	733
			0=0.200 \$02EEHI=0.300 \$02PALC=1.0	VIPRF	734
	C27AHI=1.97	C28F1=40.0 302RMA	K=14.0	VIPRF	735
735	05810=0.1 200	58 FI = 0 . 1 *C5 YLO = 1 .	42 \$CFXHI=1./1.42 \$C54L0=6.50	VIPRE	736
	(54HI=1.4 3C	FN=200.0 405MAX=3	7.0	VIPRF	737
			3HI=0.200 \$8UFFZL=24.0 \$8UFFZH=66.0	VIPRE	738
		IFAHI = 1 . C SBUFDEL =		VIPRF	739
				VIPRF	740
740	TAKRICEC . 7 4	TAKAHTER. 4 TAKKI D	=4.0 \$TAKXHI=0.50 \$TAKAL0=0.4	VIPRE	741
1 70	TAKAHI=1.0 *			VIPRE	742

	BEUCEAR Albbe	74/74 OPT=1	FTN 4.5+414	08/16/77	13.11.28
	ALA	PLC=0.3 \$ALKBHT=0.3 \$ALKYL	0=2.0 \$ALNXHI=0.5 \$ALNAL0=0.4	VIPRF	743
		AHT=1.63 \$ALNMAX=12.0		VIPRE	744
		HI=C.3 FTRAHI=1.0 \$13FC=5.	STRREF=12.0	VIPRE	745
745				VIPRE	746
	NC.	?=1 C		VIPRE	747
	C31	PHI=0.2 \$C3AXL0=2.0 \$C3AAL	0=2.0 \$C3AFN=25.0 \$C3BFN=35.0	VIPRE	748
				VIPRE	749
	CAL	L CCMPPS SCALL YAXANG (C.)	BCALL YINTAX	VIPRE	750
757	CAL	L BASALF ("L/CSTO") SCALL M	IXALF ("STANDARD") & GALL MARKER (1)	VIPRE	751
		E=C.140 \$HITE1=5.*HITE/7.		VIPRE	752
	XCA	CLF=2.0 TYAXIS=8.0 TICLFN	=0.026	VIPRE	753
				VIPRE	754
				VIPRF	755
755		*****		VIPRE	756
	C *			VIPRF	757
	C *	READ INPUT DATA *		VIPRF	758
	£. ★	*		VIPRF	759
	U ****	*******		VIPRE	760
7F 0				VIPRF	761
	1 FE/	D(F,15) (IPLANF(I), I=1,3),	JFLITE, INOPLT	VIPRE	762
		(FCF (F) .NF. C) GO TO 893		VIPRE	763
	1º FO	MAT (8 A12)		VIPRF	764
				VIPRF	765
765		CHAAAAAAAA C CELNI SE'I'I		VIPRF	766
			RDS*//63x,*COLUMN NUMPER*/	VIPRF	767
			7X,*5*,9X,*6*,9X,*7*,9X,*8*/	VIPRF	768
		(,1(H1********,7A1J/)		VIPRF	769
	PRI	NT 33, $(IPLAKE(I), J=1,3)$ , $JF$	LITE, INOPLT	VIPRF	770
775	33 FO	MAT(1HC, 28x, *DESCRIPTION C	ARD*/29X,8A10)	VIPRE	771
				VIPRF	772
		D 15, ILINE 2		VIPRE	773
		NT 36, ILIME?		VIPRE	774
		MAT (1HC, 28X, *ALTITUET-MACH		VIPRF	775
77F		OCF (86,37, ILINE2) (ALT(I),	AMAKNO(I), I=1,6)	VIPRF	776
	30 FU	MAT (6 (F9.2, F5.2))		VIPRF	777
	5 - 1	IS AS TATMES		VIPRF	778
		NT 38, ILINES		VIPRF	779
780		MAT (1HC, 28x, *AIRCRAFT PARA	METERS CARRY 120V 8A1CA	VIPRF	780
1 6.			DF, T, FCCAT1, FCCAT2, MATERL, CATGRY	VIPRF	781 782
		MAT (7F1J.3, A1, A2)	, br , r , r com r j , r op r z , mar ERE , Carlokt	VIPRE	783
				VIPRE	784
				VIPRE	785
7 85	T = 7	PLANE (1)		VIPRE	786
		(I.Fr. IF4) GC TO 20		VIPRE	787
		I.FC. IF15) 60 TO 26		VIPRE	788
		I.EG. IF16) GO TO 40		VIPRE	789
		I.FO. IF111) GO TO 43		VIPRE	790
790		I.FC. IA75) 60 TO 65		VIPRE	791
		I.FC. I 113) 60 TO 48		VIPPF	792
				VIPRE	793
	CAL	L READCOS (0.,0.,0.,0.,0.,0)	,0.,0.,0,0.,c.,0,0.,c.,0,I,IFRROR)	VIPRF	794
		TO 47		VIPRE	795
705				VIPRE	796
			4,-129.0,35.0,32.3,35.3,1.0,	VIPRF	797
	1111	4, CX1 F4, PB1 F4, N2 F4, PY2 F4, D		VIPRF	798
		TC 47		VIPRF	799

	POCCUM V	Ibsk	74/74	0PT=1	FTN 4.5+414 0	8/16/77	13.11.28
		23 CALL	READCOS (	6.5,-127.0,27.8,-131	.0,35.0,39.1,40.2,1.0,	VIPRE	800
POC		2N1F15	.CX1F15.	DP1F15.N2F15.DX2F15.	DB2F15, 1, IF15, ITRROR)	VIPRF	601
		CO TO				VIPRE	602
				12.9131.0.32.5,-13	33.0,35.0,27.1,29.5,1.0,	VIPRF	803
					DB2F16, 1, IF16, IERROR)	VIPRE	804
		GO TO				VIPRE	805
205		47 CALL	READCOS	8.5,-134.0,0.00, 0.0	1,35.0,38.1,47.1,1.0,	VIPRF	806
		1N1F11	1,DY1111	,CB1111,N2F111,DX211	1,DB2111,1,IF111,IERROR)	VIPRE	607
		GO TO				VIPRF	808
		45 CALL	READERS (	15.2,-129.0,23.0,-14	+0.0,35.0,20.5,25.4,1.0,	VIPRE	603
		2N1A7D	, 0 X 1 A 7 D ,	DR1A7D, N2A7D, DX2A7D,	DB2A7D,1,IA7D,IERROR)	VIPRF	810
P10		E0 10				VIPRF	811
		4ª CALL	READODS	9.04,-131.0, 0.0, 0.	0,35.0,0.00, 4.0,1.0,	VIPRF	812
		111111	,CX1010,	DP1413,N2A13,DX2A13,	,D92A1J,1,IA10,IERROR)	VIPRE	813
						VIPRE	614
						VIPRF	815
R15				0) GO TO 27		VIPRE	£16
				1) GO TO 1		VIPRE	817
				2) GO TO 4		VIPRE	818
		IF (IE	RROP.ED.	3.OR. IEPROR.EO.4) GO	J 10 41	VIPRF	819 820
					THEOLOG	VIPRE	821
B S L				NF2(1) TIPLANE(2)=IL		VIPRE	822
		_		NE2(3) \$JFLITE=ILINE	:2(4)	VIPRE	623
			T=ILTNE2	(1)		VIPRE	824
		co To	11			VIPRE	625
		11 50 13	T-4 E			VIPRE	826
85=		41 00 42				VIPRE	827
		73 IHUTL	(1) = 1616	12 (1)		VIPRE	828
						VIPRE	829
	C				*	VIPRE	830
0.7.	G	# CHECK	WALTETT	Y OF INPUT DATA VALU	IFS *	VIPRE	831
830		*	AUTICII	TOP INFO DATA VALO	*	VIPRE	832
		******	******	********	******	VIPRE	833
						VIPRE	234
		27 M= 1				VIPRF	835
8 75			ITTE.FO.	ISANDI . OR . JELITE . ED.	.IRUFET.OR.JFLITE.FO.ITAKOF	VIPRF	836
				.ILAND.OR.JFLITE.FQ		VIPPF	837
					ET, ITAKOF, ILAND, ITURP	VIPRF	838
					HE FLIGHT CONDITION, NOT*, A10, *OR*,	VIPRF	839
		1410.*	CR* . M10 .	*OR*, 10, *OR*, A19/*	FOR "STRAIGHT-AND-LEVEL", "BLFFET-	VIPRE	64C
81.0		2TURN"	"TAKE-	FF", "LANDING" AND "	LOW-FREG. ATMOSPHERIC TUREULENCE",	VIPRE	841
			TTJ VFLY.			VIPRE	842
						VIPRF	843
		? IF (XE	. GT . r . 1	CO TO 10		VIPRF	644
		M=1 3	II=10+00	WN-STREA 3 1=1 0HM A	FRO. DST SPRINT 5, II, J, XE	VIPRE	845
845		1 I = 3 H	>C. 4bbI	NT 8, II, IPLANK		VIPRF	846
						VIPRF	647
				GO TO 14		VIPRF	848
					SKIN SPPINT 5, II, J, RS	VIPRF	849
		I I = 10	H>0. CR	=0. PRINT 8, II, IRL	ANK	VIPRF	850
PEO						VIPRF	651
				GO TO 11		VIPRE	852
					GHT PRINT 5, II, J, WE	VIPRE	853
		I I = 10	H>0. CE	=0. SPRINT 8, II, IPL	ANK	VIPRE	854
						VIPRE	855
8F5		11 IF (DF	.GT.(.)	GC TO 18		VIPRF	856

	DOCCEAN VIEWE 74/74 CPT=1 FIN 6.5+414	08/16/77	13.11.28
	M=1 SII=10H FUSELACE *J=8HDI4METER \$PRINT 5, II, J, DF	VIPRF	857
	II=3H>C. TORINT 8, II, IDLANK	VIPRE	658
	CC TO 10	VIPRF	859
	to the fe	VIPRE	0.69
0.01	41 V4-DE42 CIE/DE   E V41 CO TO 10	VIPRF	861
DEL	14 Y1=DF/2. SIF(RS.LF.X1) GO TO 19	VIPRE	862
	M=1 SCRINT 16, PS, X1 14 FORMAT(1H-, *THE SPECIFIED DISTANCE FROM THE SKIN *, F7.2, * EXCE		863
	15 FURNITARY THE FUSTIONS PROMETED * E7 2)	VIPRE	864
	10NE-HALF THE FUSELAGE CIAMFTER *,F7.2)	VIPRF	865
	II=1"HEUSSLAGE O SJ=6HI4./2. *PRINT 8, II, J	VIPRE	866
DEL	10 75 77 57 5 1 5 1 5 2 7	VIPRE	867
	10 IF(T.CT.C.) 60 TO 23  M=1 III=10H SKIM TH SJ=7HICKNESS \$PRINT 5, II, J, T	VIPRE	868
		VIPRE	869
	II= TH> C. SCRINT & , II, IFLANK	VIPEF	870
	03 75 404 509 (5 040) 50 70 76	VIPRE	871
270	27 IF (CATGRY.SC. C13) GO TO 36	VIPRE	672
	<pre>IF(FCCAT1.GE.U.) GO TO 74 M=1 SII=10HCATFGORY C SJ=10HENTER FRC. SPRINT 5,II,J,FCCAT1</pre>	VIPRE	873
		VIPRE	874
	II=10H>3. OR =0. SPRINT 3, II, IBLANK	VIPRE	875
	7. TE (ECCATO CE - ) CO TO 76	VIPRE	876
P75	7/ IF (FCCAT2.GE.J.) GO TO 76	VIPRE	877
	M=1 STI=10HCATEGORY 3 EJ=1GHA OR 3P FC SPPINT 5, II, J, FCCAT2	VIPRE	878
	II=10H>0. CR =0. TPRINT 8, II, IBLANK	VIPRE	679
	TO TELEVISION OF TOTTEL OR MATERI ED TITTAN OR MATERI ED TALIM	VIPRE	880
	76 IF (MATTRI.EG. ISTEFL.OP.MATTRI.EG.ITITAN.OP.MATTRI.EG.IALUM	VIPRE	881
000	1. OR. MATERILEO. IMAG) GO TO 50	VIPRE	289
	M=1 PERINT 24, MATERL 24 FORMAT (1H-, *THE LETTER SPECIFIED FOR THE AIRCRAFT MATERIAL WAS		883
	101/* IT MUST OF S,T,0 OR M FOR STEEL, TITANIUM, ALUMINUM AND MAG	NEST VIPRE	884
	1011/4 11 PCS1 EE S,1, h UP H FUR SIEEE, 1114NIOM, 4EOMINEM AND HAD	VIPRE	885
	2UM, RESER OTIVELY.*)	VIPRE	886
8 8 5	EC IF (CATGRY. EG. C1A. CR. CATGRY. EG. C1B. OP. CATGRY. EG. C2A. OR. CATGRY. E		887
	1C2P.GR.CATGRY.EO.C3A.OP.CATGRY.EO.GR.CATGRY.EO.C4A.OR.	VIPRE	688
	10.28-08-0 LAIGHT - United and OF OR CATCHY FO CO SO TO SE	VIPRE	889
	2001GRY.50.C48.CR.0ATGRY.30.05.OR.CATGRY.80.06) GO TO 54 M=1	VIPRE	890
	ED FORMAT (1H-, AR, * WAS SPECIFIED FOR THE EQUIPMENT-MOUNTING CATEG		891
800	1*/* THE PROGRAM EXPENTS SPECIFICATIONS FOR CATEGORIES CHLY AS	FOLL VIPPE	892
	2085 ** 1. (17, A3) /* THE PROGRAM PROBEETS TO THE NEXT PROPLEM FOR	ANAL VIPRE	893
	3A212(**)	VIPRF	894
	E4 IE(EN.CT.C.) GO TO EC	VIPRE	895
RCE	W=1 TTI=1041ST MODE F TJ=8HREQUENCY PRINT 5, II, J, FN	VIPRE	896
A 1. 5	II=3H>C. GRRINT 9, II, IPLAMK	VIPRE	897
	11-70-1	VIPRE	8 9 A
	61 IF(XLF"AY.LT.0.) 00 TO 56	VIPRF	899
	M=1 STT=10H MAX.VALUE TJ=8H OF L(F) \$PRINT 5, II, J, XLFMAX	VIPRE	600
900	JI=3H <c. 3,="" appint="" ifland<="" ii,="" td=""><td>VIPRF</td><td>901</td></c.>	VIPRF	901
0	********	VIPRE	902
	55 JF (F2N.G5.0.) GO IN 64	VIPRF	903
	M=1 SII=10H2NC MORE F SU=8HREQUENCY SPRINT 5, II, J, F2N	VIPRF	c 0 4
	II=164>C. OR =0. SPRINT 9, II, IBLANK	VIPRF	905
9 (F		VIPRF	606
	64 IF (XL2FMX.LF. 0.) GO TO 58	VIPRF	907
	MET STIE 1TH MAX. VALUE SJERY OF L2(F) SPRINT 5, II, J, XL2FMX	VIPRE	908
	II=10H <c. a,="" cr="C." iblank<="" ii,="" td="" torint=""><td>VIPRF</td><td>909</td></c.>	VIPRF	909
		VIPRF	910
919	54 IF (PUEMAY .GE. C.) 60 TO 52	VIPRE	911
-	M=1 fil=10HMAX.OF PUF 4 = 13H.TURN S(F) 4PPINT 5, II, J, BUFMAX	VIPRE	912
	II=1GH>0. CR =C. PRINT 8, II, IBLANK	VIPRF	913

	EBULBUM AILB	74/74	OPT = 1	FTN 4.5+414	08/16/77	13.11.28
				,	WIDDE	044
					VIPRF	914
	5.7	IF (XET.GE.(.)		ADDITUT S IT I VOT	VIPRF	915
915			FET-TUR TJ=10HN DISTANCE	\$PPINI 5,11,0,XPI	VIPRF	916
		II=10H>r. CR :	C. SPRINT 8, II, IPLANK		VIPRE	917
					VIPRE	918
	65	IF (YTL.GE.1.)			VIPRE	919
			CEOFF-LA SI=1]HMDING DIST	SPRINT 5,11,J,XTL	VIPRE	920
350		II=10+>r. 09:	C. SPRINT 8, II, IBLANK		VIPRE	921
					VIPRF	922
	63	IF (FCMCVE.GE.		E TT I FONOUE	VIPRF	923
			T. CONST & JERHANT K SPRINT	5, II, J, FGMOVE	VIPRE	
		II=3H>0. CORI	IT 8, II, IELANK		VIPRE	925
052					VIPRE	926
	7.5	IF (NMCCE1.GT.	0.) GO TO 21	TYA-NHOREA CORTNI E II I V	VIPRE	927
				<pre>\$X1=NMODF1 \$PRINT 5,II,J,X</pre>	1 VIPRE	626
		II=3H>:. CERI	RT 8, II, I'L ANK		VIPRE	930
					VIPRE	931
033	21	IF (DXMCD1.ST.		DINI E II I DVHODA	VIPRE	532
			CIST.BE # 1=9HT.DB VALS \$P	KIN1 5,11,5,0xm001	VIPRE	933
		II=3H>C. LEBI	AT 8,11,10LANK		VIPRE	¢34
			50 TO 75		VIPRE	935
	4	IF (F2N.EG.I.)			VIPRE	936
032		IF (NMCCE2.CT.	TO WAL STEADHOND B MODE	SX1=NMODE2 PPRINT 5,II,J,X		937
				311-4-6512	VIPRE	C 7 8
		III - HAI	KT 8, II, IELAMK		VIPRE	c39
	7.3	IF (DYMCD2.31.	. V CO TO 35		VIPRE	940
010	3.0		DIST. SE SJ=10HT. DB VALS.	SPRINT 5. TT. 1. DYNOD2	VIPRE	941
070			AT 8, II, TELANY	5 KIN 1,11,0,000	VIPRE	542
		11- ius	0,11,000		VIPRE	943
					VIPRE	C44
	7-	rn 101 - T=1.6			VIPRE	945
015	-,1	TE (AMPENIC (T).	n.a.) so to 1000		VIPRE	946
		3. 18			VIPRF	947
					VIPRF	548
		H= 11 T(T) *TF(	H.GE.D. AND . H. LE . HMAX) GO	TO 28	VIPRF	949
		M=1 : II= 10 L	ALTI SJ=4HTUDE SPRINT		VIPRF	550
OFO			= : J=9H < OR = :X1=0. 40		VIPRE	951
	5	FORMAT (* THE	PROSEAM ASSUMES THAT IT WI	LL EE *, A10, G12.5, * AND *,	VIPRF	952
		1A1J, F11.2)			VIPRE	953
		GO TO 7			VIPRF	954
					VIPRF	955
OFE	2 8	XMVKNL=VMVKNO			VIPRE	956
		IF (JFLITE . NE.	ITAKOF. AND. JELITE . NE . ILAND	D) GO TO 7	VIPRE	957
		IF (XMAKNC. LT.	1 33 (0.0003.013.H. TNA. FF. 0	10 78	VIPRE	958
		PRINT 2, H, XMA	KNO		VIPRE	959
	,	FURMAT (//////	///141/*THE FOLLOWING VALU	JES, REAT FOR ALTITUDE (H) AN	C VIPRF	560
960		1 MACH NUMPER!	MI.WEPF INCORRECTLY SPECIF	TIED ON THE ALTITUDE-MACH N	C VIPRF	961
		2. CART: # / TEX.	*H=* .F10 .1/35X ,*M* ,F10 .3/	* THEY WERF SET FOUAL TO T	H VIPRE	962
		3F CORFECT VAL	USS, H= 2001.0 AND M=0.93, V	NHICH ALWAYS MUST BE SPECIF	I VIPRE	663
		450 */* WHEN TH	E FLIGHT PHASE IS TAKE-OFF	AND LANDING. *)	VIPRF	964
		XMUKNC=2.03 :	H=2000.0 300 TO 78		VIPRE	965
OFE					VIPRF	966
	7	IF (XMAKNO.GT.		I WWAWNG	VIPRE	967
		M=1 STI=10H	MACH SJ=4H NO. SPRINT		VIPRE	968
	r,		HE VALUE SPECIFIED FOR *,2	ZA10,* IS *, [-12.5]	VIPRE	969
		II=3H>0. *FRI	NT 8, II, I LANK		VIPRF	970

	BEUCEUM NIBSE	74/74	0PT = 1	FTN 4.5+414	08/16/77	13.11.28
970	q	EUSHAT (* THE	PROGRAM ASSUM	ES THAT IT WILL BE #,2410)	VIPRE	971
.,,		Dark He	110/12/	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	VIPRE	972
					VIPRF	973
					VIPRE	574
	7 *	IF (M. F (. 1) G(	TO 1000		VIPRE	975
975					VIPRF	976
		IF (FCMCYE.FG.	. 0.) FCMOVF=1	0	VIPRF	977
					VIPRF	978
		ICK=0 SIFLITE	=ISA "DL		VIPRF	979
					VIPRF	680
980	3	DO 17 II=1,7			VIPRF	981
			4 AILIMES(II):	14	VIPRF	982
	17	ITITL1 (II) = 18	4		VIPRF	983
					VIPRF	984
		ILIME1(1)=10H	H TO ECUIPH 3:	LIME1(2) = 10 HENT LOCATI SILINF1(3) = 2HON	VIPRF	C 85
ORE				)\$ \$IF(IFLITE.EO.ISANDL) GO TO 34	VIPRF	C 8 6
		IF (IFLITF.NE.	. IFUFET) GO TO	12	VIPRF	987
				LIME1(2)=10HORD CENTER	VIPRE	C 8 8
		IL INE 1 (3) = 10	H OF THE WI 3	LINF1(4)=2HNG	VIPRF	989
		X=XPT IIY=2H	BT SIPHASE=SH	(PT) 1 3GO TO 34	VIPRE	990
det	1 ?	IF (IFLITE . NE.	. ITAKOF) GC TO	13	VIPRF	991
		ILINE1 (1) = 10	H TO THE LA ST	LINE1(2)=10HNDING GEAR	VIPRF	992
		X=XTL SIX=1H	SIPHASF=54	T) \$ \$IFN=1HN \$GO TO 34	VIPRF	993
					VIPRF	994
			ILAND) GO TO		VIPRE	995
cc5		X = XTL IIX=1HI	L FIRHASE=5H	L) \$ SIFN= 2H2N 3GC TO 34	VIPRE	996
					VIPRE	997
	22	X=XL : IX=3H.	TE SIPHASE=64	(TR) f TIFN=1HN	VIPRF	998
					VIPRE	999
	37	II=H/500.+1	* X1= FCC .		VIPRE	1000
1000		IF (H. LE. 1610)	(.) GO TO 44		VIPRE	1001
		II=H/1000.+1:			VIPRE	1002
				SR=AVDENS(II)	VIPRE	1003
			(X2.E)	) 60 TO 45	VIPRE	1004
		II=II+1 ex3=			VIPRE	1005
100=		R=P+(AVDF+S(			VIPRF	1006
		C=C+(CCANU(I			VIPRE	1007
		A=A+(AIZLLZ(	[ [ ] - 1 ] • X 3		VIPRF	1008
	, -	D. ODH - D ( AUDE)	NCCAN CHROOM	CALLED-COOP DECIMARY - 112 CALCOOPTIVA	VIPRE	1009
4546	4 7			//VISCOS(1) \$U=XMAKNO*C \$0SQ=R*U*U/2.	VIPRE	1011
1010			FREX=U+XF/VIS	L. DE-2*XE* (1.0+DELTA7*DELTA7)**0.10	VIPRE	1012
			7 * (RNORM * * 1. 7		VIPRE	1013
		I - CIME-II-CIA	Z · (KNOKH · · · ·		VIPRE	1014
		F70F=[.70*1/	DILTAR		VIPRE	1015
1015		H - H - C - 1 C - C - 1	(, L ) a -		VIPRE	1016
1(15		DDE-4 71.5 1T	F (FZPF.LE.3)3	A) CO TO GC	VIPRE	1617
				10.0) GO TO 90	VIPRE	1018
				DO.O,X1,O,BFF,BFZFF,NBFZPF)	VIPRE	1019
		, ALL NICELIN	,		VIPRE	1020
10 20					VIPRE	1021
	a :	X1=.307/(1.0	+0.14*XMAKNO*	(MAKNO) PFF=X1 *X1 * CSQ * DELTA E/U	VIPRE	1022
				O. O*ALOG10 (PFM/ (PFMOP*PFMDR))	VIPRE	1623
					VIPRE	1024
					VIPRF	1025
1025		IF (MATERL. NE	. INLUM) ON TO	92	VIPRF	1026
			= 10H ALUMINU		VIPRF	1027

	PROGRAM VIPRE	74/74 CPT=1	FTN 4.5+414	08/16/77	13.11.28
	GO	TO 100		VIPRF	1028
		MATERL. NE. ITITAN) GO TO	94	VIPRE	1029
		24.0*T 4J=10H TITANIUM		VIPRE	1030
10 30		TO 100		VIPRE	1031
		MATERL.NE. ISTEFL) GC TO	96	VIPRE	1032
		41.0*T :J=10H STEEL		VIPRF	1033
		TO 100		VIPRE	1034
		9.17*T 3J=104 MAGN=SIUM		VIPRE	1035
1035				VIPRE	1036
				VIPRE	1037
	103 PRI	NT 246		VIPRE	1038
	PRI	NT 353, IPLAME, IFLITE		VIPRE	1039
	PRI	NT 205, F, XMAKNO, X, IX, IX	(ILINE1(II), II=1,5)	VIPRE	1040
1000	II=	1H SIF (CATGRY. EO. C1A) I	I=14*	VIPRE	1041
		MT 210,RS, WF, T, J, WS, CAT		VIPRE	1042
	PRI	NT 22C		VIPRE	1043
	PRT	NT 225, R, AVDENS (1) , PNOR	M,V,VISCOS(1), VNCRM,C	VIPRE	1044
	L' R I	NI 530		VIPRF	1045
10 45	PRI	NT 235,U, OSG, PEY, DELTAZ	DELTAB	VIPRF	1046
	2°F FOR	MAT(1H-,19x,*H=*,F12.1,	5X, *ALTITUDE (FT.) */	VIPRE	1047
		, * M= * , F12. 2, 5X, * MACH NO.		VIPRF	1048
	219X	,*x =*,F12.2,6X,A2,* DI	STANCE FROM THE LEADING FDGE OF THE */	VIPRE	1049
			YNAMIC PROFILE (FT.) *,5A10)	VIPRF	1050
10 50			*DISTANCE FROM SKIN(IN.)*/20X,*5*/	VIPRE	1051
			ENT WEIGHT (LBS.) */20x, *E*/	VIPRF	1052
			SS OF SKIN MATERIAL (IN.) */	VIPRF	1053
		, **ATERIAL=*, 3X, A10, 5X,		VIPRF	1054
	472X	,*2*/10x,*W =*,F12.7,6X	,*DENSITY OF SKIN MATERIAL, LES. /FT. (CAL		1055
10 55		TED)*/23X,*S*/		VIPRE	1056
	613×	,*CATECCRY=*,9x,A2,7X,*E	COUIPMENT MOUNTING CATEGORY*/	VIPRE	1057
			R OF FUSELAGE (IN.) */20X,*F*//)	VIPRE	1058
		MAT (* VALUES SELECTED F	ROM ATMOSPHERIC TABLE*)	VIPRE	1059
1050	325 FOP			VIPRF	1060
10 F O			IR DENSITY AT ALTITUDE H(SLUG/CU.FT.)*/		1061
	** 4.5	, TP = T, - 12. E, 5 X, TMENN A.	IR DENSITY AT ZERO ALTITUDE (SLUG/CL.FT.		1062
		6X, =0 =/	ALTZED MEAN ATD DENETTY ACCY HOLA	VIPRF	1063
			ALIZED MEAN AIR GENSITY*/2CX,*0*//	VIPRE	1064
10 65	**/	, " = ", -12 · 1, 67, " TE TA	TIC VISCOSITY AT ALTITUDE H(FT.SC./SEC.		1065
1665		*U - * E42 7 6V *VTAEMA	TIC VISCOSITY AT ZERO ALTITUDE (FT.SO./SI	VIPPF	1066
		*/20x,*3*/	TIG VISCOSITY AT ZERO ALTITUDE (FILSTINO/S)	VIPRE	1068
			ALIZED KINEMATIC VISCOSITY*/2(X,*0*//	VIPRE	1069
			SOUND AT ALTITUDE H(FT./SEC.) *///)	VIPRE	1070
1070			FOR AERODYNAMIC PARAMETERS*)	VIPRE	1071
20.11	233 FOR		ALKOUTHANII TAKANIITKS	VIPRE	1072
			TREAM VELOCITY (FT.SFC.) */	VIPRE	1073
	220 X	*2*.30x.*2*/19x.*0 =*.	12.5,6X, *DYNAMIC FRESSURE(PSF )*/	VIPRE	1074
	*18X	*RE = + . F12 . 5 . 64 . * REYNO!	DS NUMBER AT DISTANCE X*/20X,*X*/	VIPRE	1075
1075			JNDARY LAYER THICKNESS AT ZERO ALTITUDE		1076
		)*/20X,*0*/	The second secon	VIPRE	1077
			INDARY LAYER THICKNESS AT ALTITUDE HIFT.		1078
		20x,*¤*)		VIPRE	1079
				VIPRE	1080
10 80				VIPRE	1081
				VIPRE	1082
	PRI	NT 246 PRINT 353, IPLANS	,IFLITE	VIPRE	1083
		NT 240	NOT THE TOTAL SECTION AND ADDRESS OF THE PROPERTY OF THE PROPE	VIPRE	1084
				-	

	coOcove Alask	74/74	OPT = 1	FTN 4.5+414	08/16/77	13.11.28
	243	- G = M A T (1 H = . * P A	PAMETERS OF T	HE BOUNDARY LAYER FUNCTION FOR F(F)*)	VIPRE	1085
10 85		PRINT 24F, OFM,	DEMON ONE VOL	CZDE ADEUT		
1	21.5	CONNTICHY #2#	/16 V *D / E) -4	FE42 A CV *MAYTHIM WALLE OF DOD DOT ALL	VIPRE	1086
		*/17Y,*N*/	110,4,1	F12.4,6X, *MAXIMUM VALUE OF PSD, PSF /H		
			*2* /4 CV #D #F	THE EAR OF THE PROPERTY OF THE	VIPRE	1088
				)=*,F12.2,6X,*MAXIMUM VALUE OF PSC,DB.	VIPRF	1089
45.50		E. ((.41771Y1)			VIPRF	1090
1000				ACTOR, HIGH FREO. ROLL-OFF*/	VIPRE	1091
				ZING FRED. PATIO, HIGH-FRED. POLL-CFF*/	VIPRE	1092
			1, bx, TLCL4111	R FREQUENCY, HIGH FRED. ROLL-OFF (HZ.)*/	VIPRE	1093
		?g v , * r * /			VIPRF	1004
	8.1	rex, *probbet = *,	F12.3,6X,*ENE	M FACTOR, HIGH FREQ. FOLL-OFF*)	VIPRE	1095
1005					VIPRE	1096
				TITL1(?) = 7HLIGHT) •	VIPRF	1097
		(NENDA = V hENVX	SXHFMAX=AHFMI	i X	VIPRE	1098
					VIPRF	1099
					VIPRE	1100
11/00					VIPPF	1101
	1	F(IFLITE.EG.I	SANDLI GC TO	283	VIPRE	1102
		(F(IFLITE.NE.I	PUFFT) SC TO	25 1	VIPRF	1103
					VIPRF	1104
	U ##1	* * * * * * * * * * * * * * *	* * * * * * * * *		VIPRE	1105
1175	~ *		*		VIPRE	1105
	C * 1	UFFET-TURN PH	155		VIPRE	1107
	U #		*		VIPRE	1108
	C ##1	*********	*****		VIPPF	1109
		LINI1 (1)=10HC	ENTER FRE SIL	ING1(2)=10HOUENCY OF	VIPRE	1110
1117				INE1(4)=1CHANSFER FUN	VIPRE	1111
		LINF1(F)=EHCT			VIPRE	1112
				ITL1(2)=10HRN PHASE)\$	VIPRE	1113
					VIPRE	1114
		XIO=BLEXIC S	AHI=BUEAHI 30	BHI=BUFRHI \$M=3HCRT	VIPRE	1115
1115				DELTA = BUFDFL \$SF7LC = PUFF7L	VIPRE	1116
***		, , , , , , , , , , , , , , , , , , , ,		0.2014-00 0.2 001 201-011	VIPRE	1117
	1	= 185 (X-XE)			VIPRF	1118
			COR) TE(D.GT	.(NDDR-1)) GO TC 239	VIPRE	1119
		- 1 - 5 · VAL ( · ·	.1.10.0.	. (100-177 60 17, 22)	VIPRE	1120
1127	ſ	ALL TERRITATE	DELDOR. C VI	,1,SBTED,CDBVAL,NDD9)	VIPRF	1121
112	,	ACC CINTE	,	, , , , , , , , , , , , , , , , , , ,	VIPRF	1122
	232 0	BIED-FHENNYAS	HIED TIE (SRIE	D. SO. SDELTA) SETED=1.01*SDELTA	VIPRE	1123
		FISTED. CT.SC			VIPRF	1124
				**	VIPRE	1125
1125		TIC(1)-DT 1ST	CM (1) 1 .0 99	XHI=0.167 \$SAHI=2.0 \$SF7HI=3C.0	VIPRE	1126
112		GEVK= CUELLV	6 ((1)1.)	AMI-3:107 13AMI-2:0 1377HI-30:0	VIPRE	1127
			TROUTURE COUTE	I=FCS/SXHI *FRQ=SXLO*SF7LO	VIPRF	
					VIPRE	1128
		O TO 253	, 2 E C   H , - 1   E E	,SXHI,SAHI,FRO,SF7HI,SIGN(1),HILO(1))		1130
1130	1	10 10 233			VIPRF VIPRF	
1100	21.7 1	T10/11-0 40T	CN143-4 C 25C	C-CVI OFCETIC TOREAU-COTED		1131
				S=SXLO*SF7LC \$SPEAK=SRTFD	VIPRF	1132
		FZHI=FCMCVE*F			VIPRE	1133
		ALL TITATION	, 50 17 11, SULLIA	,SXLO,SALO,FRO,SF7LO,SIGN(1),HILO(1))	VIPRE	1134
44 75	1.	O TO 253			VIPRF	1135
1135					VIPRE	1136
	~ ##4	****	*****		VIPRF	1137
	C #		*		VIPRE	1138
		AVE-DEE BUACE	¥		VIPRF	1139
1110		AKE-OFF PHASE	*		VIPRF	1140
1140			•		VIPRE	1141

	PROCRAM VIPRE 74/74 OF	PT = 1	FTN 4.5+414 0	8/16/77	13.11.28
				VIPRE	1142
	U *********				
	250 TF (IFLITE NE . ITA	KUE) SO TO SES		VIPRE	1143
	ILING1(1)=10HFIR	RST FUSE FILING	1(2) = 10HLAGE BENDI	VIPRF	1144
	ILINE1(3)=10HNC	MUDE AL SILINE	1(4) = 1 CHRTICAL (H7)	VIPRF	1145
1115	ITTTL1(1)=1CH(TA	TKEOLE & SILIL	1(2)=EHHASE) 4	VIPRE	1146
				VIPRE	1147
	XMFMAY=-168.0 5X			VIPRE	1148
	SXLO=TAKXLO 3SXH	HI=TAKXHI \$SBLO	=TAKBLO &SBHI=TAKBHI	VIPRE	1149
	SALO=TAMALC &SAH	HI=LUKUHI &ZDLV	K=TAKMAX &M=2HCT	VIPRE	1150
11 57				VIPRE	1151
	SF7LO=FM/SXLO			VIPRE	1152
	SEZHI=FC MCVE*FN/	SXHI SECS=EN		VIPRF	1153
				VIPRE	1154
	60 TO 253			Albbe	1155
1155				Albbe	1156
11	○ 在在我在在在在在在在在在在在	<b>水 ☆ ☆ ★ ☆ ☆ ☆</b>		VIPRE	1157
	r *	*		VIPRE	1158
	C * LANDING FEASE			VIPRF	1159
	r •	*		VIPRF	1150
1160	. ***********	*****		VIPRE	1161
1166	257 IF (IFLITE . NF . IL			VIPRE	1162
	TI THE 1 (1) = 1 PHSE	COND FUS STITME	1(2)=10HELAGE FFND	VIPRE	1163
			1(4) = 10HRTICAL(HZ)	VIPRE	1164
	1610.1107-1301	, , , , , , , , , , , , , , , , , , , ,	1147	VIPRE	1165
44 65	ITITE 1 (1) = 10H(L	ANDING P STITL	1(2)=644457)5	VIPRE	1166
1155	IIII III III IIII	411110	112/22/100	VIPRE	1167
	XMEMAX=-152.0 5)	VUEMAY = -1 35.0		VIPRE	1168
	XHFF6X152.66 17	V-11 - 17 - 0		VIPRE	1159
	1424 J 1414 14 - 0 143	HT-ALMYHT CORL	=ALNBLC \$SBHI=ALNBHI	VIPRE	1170
4470	CALC-VENATO 32V	HT - AL MAHT & SDE	K=ALNMAX 4M=SHCL	VIPRE	1171
1170	SF7LC=F2N/SXLC		The second of th	VIPRE	1172
				VIPRE	1173
	SEZHI=ECMCVE*E2	ANSARI		VIPPF	1174
	CO TO 253			VIPRE	1175
				VIPRE	1176
1175				VIPRE	1177
	· ***********			VIPRE	1178
				VIPRE	1179
	C * INDBUTENCE BHUS	f *		VIPRE	1180
				VIPRE	1181
1180	U		05 6./53	VIPRE	1182
	255 ILINE1(1)=10HCF	NTER FRE SILING	1(2)=1(HU, UF S(F)	VIPRE	1183
	ILINE1(3)=104F0	R LF ATM TILIN	1(4) = 10HOS.TURBULE	VIPRE	1184
	ILINE 1 (5) = 10HNC	ETHE BOT BITTHE	1(6)=1CHL-OFF CNLY \$ILINF1(7)=1H)		The second second
	ITITL1(1)=10H(L	ON ERFO. FITITI	.1(2)=1CHATMOS.TURB	VIPRE	1185
11 85	ITITL1(3)=10HUL	ENCE DAY SILIL	.1 (4) = 4 HSE) 3	VIPRF	1186
				VIPRF	1187
	SBHI=TEBHI &SAH			VIPRF	1188
	FCS=FCMOVI*TRFC	SSXHI=FOS/SF7	I	VIPRE	1189
				VIPRE	1190
1100	FRG=SFZHI TY1=F			VIPRF	1191
	X2=PI-ATAN2(2.0			VIPRE	1192
	X3=PI-ATAN2(2.0	*2cHI*( 2XHI**2	NHI),1.C-SXHI*SXHI)	VIPRE	1193
	SPEAK=TEREF-20.			VIPRE	1194
				VIPRF	1195
1100				VIPRE	1196
	253 PRINT 251, TX			VIFRE	1197
	251 FORMAT (1H-,*PAR	AMETERS OF THE	SPECIAL FUNCTION FOR S (F)*/41X, A2)	VIPRF	1198

	PROCENT VIER	F 74/74	OPT = 1	FTN 4.5+414 0	8/16/77	13.11.28
		TT-EUC (E) ¢	I-4HM 4DDTAT	52, II, SPEAK, II, IPLANE (1), IX, J, IX	VIPRF	1199
	767			,*MAXIMUM VALUE CF *, A5, *-DP., FOR*,	VIPRE	1200
1200				,1X,A1,37X,A2)	VIPRE	1201
16 :		1010, 1112 41	OKAL 1 7 1 9 4 9 4 1	, 1 N, N1, 01 N, NE?	VIPRE	1202
		TECTELITE. SC.	TRUELT AND OF	TED.LT.SDELTA) GO TO 257	VIPRE	1203
		11 (11 (11 )		1.0000000000000000000000000000000000000	VIPRE	1204
		PRINT 380.SE	C.SBHI.SXLO.S	XHI,SF7LO,SF7HI	VIPRE	1205
1215			(ILINE1(J),		VIPRF	1206
		PRINT 425, SAI			VIPRF	1207
		IF (IFLITE. SO.	. IBUFET) PRINT	254, SDELTA, FMINGE, PUFMAX, D, XF	VIPRE	1208
	254	FORMAT (14-,1	SX ,* DELTA =* , F	12.2,6X, * VALUE OF S (F) AT*,	VIPRE	1209
		1F6.1,* HZ.*/	21X,*[*,29X,*r	T*/	VIPRF	1210
1210		2874,*2*,12X,	*-4*,9X,*2 2*/	16X,*S (F) =*, F12.1,6X, *MAXIMUM VALUE OF	VIPRE	1211
		3 S (F) (WHEN	C=0.)-DP.RE	.0 6 /HZ./RE.(2X10 DYNES-CM.) /HZ.*/	VIPRF	1212
		417Y, * DT M*, 7			VIPRF	1213
		521x,*r=*,F12	.2,6X,*DIFFERE	*ICE,X -X*/53X,*PT E*/	VIPRF	1214
		$620 \times, * \times = *, F1$	2.2,5x,*F [IS]	ANCE FROM THE LEADING EDGE OF THE FUSELA	VIPRE	1215
1215			1 GY, * PEROTYNA	IC PROFILE (FT.) TO THE CENTER OF THE WIN		1216
		8G CHORE*)			VIPRF	1217
		GO TO 280			VIPRF	1218
	257	DOINT OFF CE	IT CYLLT CETUT	CAUT FOC	VIPRE	1220
4003		PRINT 255, SE			VIPRE	1221
1220				*SLOPE FACTOR, HIGH-FRED. ROLL-OFF*/ IZING FRED. RATIO, HIGH-FRED. ROLL-CFF*/	VIPRE	1222
		220Y #F ! - # - E1	2 . 2 . 6 Y - *I OCATO	R FREQ., HIGH-FREG.ROLL-OFF*/21X,*0*/	VIPRE	1223
		3164. * AI DHA ==	¥ . F12 . 3 . FX . ¥ F(	RM FACTOR, HIGH-FRED . ROLL-OFF*/	VIPRE	1224
				FRED. OF TRANSFER FUNCTION (HZ.)*/	VIPRE	1225
1225		521×, *r*)			VIPRE	1226
1000			LIA. FMINGE. SE	ELTA, BUFMAX, D, XE	VIPRE	1227
			TFC, D, SPELTA,		VIPRF	1228
	25-	FORMAT (1H-,			VIPRE	1229
			NCE S (F) = *, G	2.5,* CORRESPONDING TO D=*,G12.5/	VIPRF	1230
1230		232X /2	EX, FIS LESS TH	IAN DELTA= *, G12.5 * CNLY THE HIGH-FRED. ROL	VIPRF	1231
		3L-CFF FOPTIC	N */2FX, *OF TH	HE S(F) TRANSFER FUNCTION IS USED IN CALC	VIPRE	1232
		AULATING F (F	) . */7°X , *9 1*/	5x,*(S(F)=*,G12.5,* AT F=X*,4H*F =,G12.5		1233
		5* HZ.)*/52X,	* g * )		VIPRF	1234
					VIPRF	1235
1235					VIPRE	1236
	· *	*********			VIPRF VIPRF	1237
	^ *	0.55			VIPRE	1239
	c *	H(F)	*		VIPRE	1240
1210	r *	**********	*******		VIPRE	1241
1210		YX=RS IF(RS		RSMAX	VIPRE	1242
	27,			(1), RSVALS, 1, DELPS, DBRS, NPSVAL)	VIPRF	1243
				(1), RSVALS, 1, FZHFHI, FPRIHF, NRSVAL)	VIPRF	1244
		FRC=F7HFHI	, -, -		VIPRF	1245
1245					VIPRF	1246
					VIPRF	1247
			E.LF. 2.5) 60		VIPRF	1248
		VK=0.62 81E(	MI.GE.200.0)	50 TO 320	VIPRE	1249
					VIPRE	1250
1250		DO 310 J=1.1			VIPRF	1251
		II=J *X1=WEK			VIPRE	1252
	g. c ti	IF (WE.LF.X1)	GO TO 315		VIPRE	1253
		CONTINUE	ANT VANKAUA IZ	/TT-41-VALV/TT11///UEV/TT-41-V41	VIPRF	1254
	51 '	besaute (11) +	(M=-XI) + (AUFK	(II-1)-VALK(II))/(WEK(II-1)-X1)	ATEKL	1655

1255		POOCEAN	Albák	74/74	OPT=1	FTN 4.5+414 0	8/16/77	13.11.28
######################################	1255		322	57454T-AV#574	EUT		WIDDE	4256
VIPRE   1258   VIPRE   1258   VIPRE   1258   VIPRE   1259   VIPRE   1259   VIPRE   1259   VIPRE   1250   VIPRE   1250   VIPRE   1260   VIPRE   1261   VIPRE   1261   VIPRE   1262   VIPRE   1262   VIPRE   1262   VIPRE   1262   VIPRE   1263   VIPRE   1263   VIPRE   1264   VIPRE   1264   VIPRE   1264   VIPRE   1265   VIPRE   1265   VIPRE   1266   VIPRE   1270   VIPRE   1270   VIPRE   1270   VIPRE   1270   VIPRE   1270   VIPRE   1270   VIPRE   1271   VIPRE   1270   VIPRE   1271   VIPRE   1271   VIPRE   1271   VIPRE   1271   VIPRE   1271   VIPRE   1273   VIPRE   1273   VIPRE   1275   VIPRE   1275   VIPRE   1275   VIPRE   1275   VIPRE   1276   VIPRE   1277   VIPR	163		26			DV EO C63 E7UELO-7E0 CAT (0 076		
YHELC=YXHFLC SXHFHI=XXHFHI SIF(X2,GE,Y1) GO TO 32F   VIERF   1259   VIERF   1261   VIERF   1261   VIERF   1262   VIERF   1263   VIERF   1263   VIERF   1263   VIERF   1263   VIERF   1263   VIERF   1264   VIERF   1264   VIERF   1265   VIERF   1266   VIERF   1270   VIERF   127				7777LC=275.UT	170.036 31-10416	KT. EU. 06) FZHFLU=350.0*170.036		
XHFLC=XXHFLC   XMFMI=XXHFMI   \$IF(X2.GE,Y1) GO TO 325								
1266				VHELC-VVHELC	SYNENT-YYNENT			
1262   327   XHELOSYHELC SXHEHLE XHEHLEXHEHLEXONST XHEHLE   1708   1263   1708   1264   1708   1264   1708   1264   1708   1265   1708   1265   1708   1265   1708   1265   1708   1265   1708   1265   1708   1265   1708   1265   1708   1265   1708   1265   1708   1265   1708   1265   1708   1266   1708   1266   1708   1266   1708   1266   1708   1266   1708   1266   1708   1266   1708   1266   1708   1266   126	1260					THE ATE ( Y 2 CF Y 4 ) CO TO TOF		
1265   1266   1267   1268   1269	15.60			CONST - 2 DSE	LC 1XX=XHFHITFZH	-HI BIF(XX.GE.XI) 60 10 325		
1265				00431-0.025				
18   18   18   18   18   18   18   18			323	VHELC-VHELC-C	CHST#VHELC #VHEH	-VHENTACONCTAVHENT		
1265			26. 1			1-1411400431-1411		
121   15   17   17   17   17   17   17   1	1255					F SCO TO 325		
1271	16.0			XH: C0-1.1 3 KH	EDI-FYRELTY EZHER	1 360 10 323		
XMFHI=1.0   XMFHI=10   TAPH   TAPH   SOD TO 325   VIPRF   1270   VIPRF   1270   VIPRF   1270   VIPRF   1271   VIPRF   1271   VIPRF   1271   VIPRF   1272   VIPRF   1272   VIPRF   1273   VIPRF   1273   VIPRF   1273   VIPRF   1273   VIPRF   1274   VIPRF   1274   VIPRF   1275   VIPRF   1275   VIPRF   1275   VIPRF   1275   VIPRF   1276   VIPRF   1278   VIPRF   1278   VIPRF   1279			721	TE (YHEHT .IT. 1	. O. CO TO 322			
1270			4 1 · A			1 \$CO TO 325		
1270				A	Live Francisco	3 \$60 10 329		
XHELC=Y2/F7HELC	1270		323	X1=XHFI 0*F7HF	C	THI SIE (X2.1 T. X1) GO TO 323		
1275						TO THE CENTRAL OF THE		
1275								
1275								Control of the Contro
1275			325	DELWE = ( . STF (	WE . LE . 10 . C) GO T	340		
IF	1275							
CALL TEFFLIN(HE, OME10J, 12, X1, 0, DEL MF, ME100, NME100)   VIPRF   1279   1								
33						0 , DEL WF , WE 100 , N WE 100)		
1260   CALL TERPLIN(WE,OMEIX,100.,X1,0,DELWE,WE1000,NWE1K)   VIPRF   1280								
1286   373   CLME=kE5U10(9) *IF(WE.GT.WEMAX) GO TO 340   VIPPE   1283   CALL TERFLIN(kE, DWL5K, 1030.0, X1, 0, DELWE, WE5000, NWE5K)   VIPPE   1284   VIPPE   1284   VIPPE   1285   VIPPE   1286   VIPPE   1288   VIPPE   1288   VIPPE   1288   VIPPE   1289   VIPP								
1286   373   CLME=kE5U10(9) *IF(WE.GT.WEMAX) GO TO 340   VIPPE   1283   CALL TERFLIN(kE, DWL5K, 1030.0, X1, 0, DELWE, WE5000, NWE5K)   VIPPE   1284   VIPPE   1284   VIPPE   1285   VIPPE   1286   VIPPE   1288   VIPPE   1288   VIPPE   1288   VIPPE   1289   VIPP	1287			CALL TERPLINE	WF, DWE1K, 100., X1	,0,DELWE,WE1000,NWE1K)	VIPRF	1281
CALL TERFLIN(KE, DML5K, 10300.0, X1,0,DELWE, NE5000, NME5K)  VIRF 1285  VIRF 1286  VIRF 1286  VIRF 1287  VIRF 1288  VIRF 1288  VIRF 1289  VIRF 1290  VIRF 1290  VIRF 1291  XHCCCK=XHFWAX+PFLWF+DELWS+DELRS  PRINT 246 EPPINT 353,TPLANC,IFLITE  VIRF 1292  244 FCPMAT(11+1)  351 II=4H(F) :FPINT 363,II,INLANK  VIRF 1295  351 II=4H(F) :FPINT 363,II,INLANK  VIRF 1297  351 II=4H(F) :FPINT 363,II,INLANK  VIRF 1297  351 II=4H(F) :FFINT 363,II,INLANK  VIRF 1296  PRINT 365,XHFMAY,DELPS,DOILHE,DELWS,XHFCOR  VIRF 1297  351 II=4H(F) :FFINT 363,II,INLANK  VIRF 1296  PRINT 365,XHFMAY,DELPS,DOILHE,DELWS,XHFCOR  VIRF 1296  VIRF 1290  VIRF 12				GO TO 340			VIPRE	1282
1265			335				VIPRE	1283
1265   341 CELMS=0. *IF(MS.LF.0.5) GO TO 350				CALL TERFLING	hE, DWE 5K, 1000.0,	(1,0,DELWE,WE5000,NWE5K)	VIPRF	1284
12°0   35°   TE (CATCRY.EC.CE)   XHFMAY=XHFMAX+7.0   VIPRF   1280   VIPRF   1290   VIPRF   1291   VIPRF   1292   TE (IFLITE.SC.ISANCL)   GC TO 351   VIPRF   1293   VIPRF   1294   VIPRF   1294   VIPRF   1295   VIPRF   1296   VIPRF   1297   VIPRF   1298   VIPRF   1298   VIPRF   1298   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1290   VIPRF   1299   VIPRF   1290   VIPRF   1290   VIPRF   1290   VIPRF   1300   VIPRF								
CELWS=20.*ALOG10(0.5/WS)   VIPRF   1288   VIPRF   1289   VIPRF   1290   VIPRF   1290   VIPRF   1290   VIPRF   1291   XHF0CR=XHFMAX+FELMF+DELMS+DELRS   VIPRF   1291   XHF0CR=XHFMAX+FELMF+DELMS+DELRS   VIPRF   1291   VIPRF   1292   FITE   FITE   VIPRF   1293   FPINT 246   IPPINT 353, IPLAME, IFLITE   VIPRF   1294   VIPRF   1295   VIPRF   1296   VIPRF   1296   VIPRF   1296   VIPRF   1296   VIPRF   1297   VIPRF   1298   VIPRF   1298   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1290   VIPRF   1290   VIPRF   1290   VIPRF   1300   VIPRF   1310   VIPR	1285					220		1286
1263   350   IF (CATCRY.EG.CG)   XHFMAY=XHFMAX+7.0   VIPRF   1290   VIPRF   1291   XHFCCR=XHFMAX+CFLWF+OELWS+DELRS   VIPRF   1292   IF (IFLITF.EG.ISANCL)   GC TO 351   VIPRF   1293   FRINI 2246   IPPINI 353, IPLANC, IFLITE   VIPRF   1295   245   FORMAT (11-1)   VIPRF   1295   245   FORMAT (11-1)   VIPRF   1295   246   ITCH   VIPRF   1296   247   ITCH   VIPRF   1296   248   ITCH   VIPRF   1296   249   ITCH   VIPRF   1297   249   VIPRF   1298   VIPRF   1298   VIPRF   1299   VIPRF   1298   VIPRF   1299   VIPRF   1298   VIPRF   1298   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1299   VIPRF   1300   VIPRF   1300   VIPRF   1301   VIPRF   1301   VIPRF   1302   VIPRF   1302   VIPRF   1303   VIPRF   1304   VIPRF   1305   VIPRF   1306   VIPRF   1306   VIPRF   1306   VIPRF   1307   VIPRF   1308   VIPRF   1310   VIPRF   1310   VIPRF   1311   VIPRF			34			350		
12°0  35° IF (CATCRY.EQ.CG) XHFMAY=XHFMAX+7.0 VIPRF 1290				UETM2=56 . + 7 FO	G10(C.5/WS)			
350   IF (CATCRY.EQ.CE)   XHFMAY=XHFMAX+7.0   XHFGCR=XHFMAX+PELWF+RELWS+DELRS   VIPRF   1292								
XHFGCR=XHFMAX+DFLWF+DFLWS+DFLRS  IF(IFLITF.SC.ISANCL) GC TO 351  VIPRF 1293  RFINT 246 3PPINT 353, IPLANC, IFLITE  24F FCOMMT(1H-1)  1295  353 FCOMMAT(1H-7, 7H*********, 3010, 1H, 310, 7H********)  351 II=4H(F) FFPINT 363, II, IRLANK  353 FCOMMAT(1H-7, 7H*********, 3010, 1H, 310, 7H********)  354 FCOMMAT(1H-7, 7H*********, 3010, 1H, 310, 7H********)  355 FCOMMAT(1H-7, 7H*********, 3010, 1H, 310, 7H********)  356 FCOMMAT(1H-7, 7H********, 3010, 1H, 310, 7H********)  357 FCOMMAT(1H-7, 7H*******, 3011, IRLANK  358 FCOMMAT(1H-7, 7H*******, 3011, IRLANK  PRINT 356, XHFMAX, DELPS, OTLWE, DELWS, XHFCOR  VIPRF 1296  PRINT 356, XHFMAX, DELPS, OTLWE, DELWS, XHFCOR  VIPRF 1300  1300  1300  1300  175x,*2*, 13x,*-4*, 8Y,*2 2*/17x,*H(F)=*,F12*2,Ex,*MAXIMUM VALUE OF VIPRF 1301  2 H(F)-DR.RS. 1.0 C./MT., ************************************	4263		750	TE ACATODY FO	CCL VIIIINAV VIIIINA			
IF (IFLITF.SC.ISANPL) GC TO 351	120		35.					
PRINT 246 3PPINT 353, IPLANE, IFLITE  24F FOOMAT(1H1)  357 FOOMAT(1H-, 7H********, 3010, 1H, A010, 7H*******)  351 II34, HF(F) FERINT 353, II, IRLANK  VIPRE  352 II34, HF(F) FERINT 353, II, IRLANK  VIPRE  353 FOOMAT(1H-, *PDARAMETERS OF THE TRANSFER FUNCTION FOR: *, A10/43X, A2) VIPRE  9RINT 355, XHFMAY, DELPS, OTLWE, DELWS, XHFCOR  VIPRE  1298  75F FOOMAT(  175X, *2*, 13X, *-4*, 8Y, *2 2*/17X, *H (F)=*, F12.2, 6X, *MAXIMUM VALUE OF VIPRE  1300  175X, *2*, 13X, *-4*, 8Y, *2 2*/17X, *H (F)=*, F12.2, 6X, *MAXIMUM VALUE OF VIPRE  1301  2 H(F)-DR.RF. 1.0 G /MZ., RE. (2X10 DYNES-CM.) /HZ.*/18X, *M*/  216Y, *DEL F =*, F12.2, 6X, *CORRECTION FACTOR TO H (F) FOR R (DB.)*/  416Y, *CEL H =*, F12.2, 6X, *CORRECTION FACTOR TO H (F) FOR W (DB.)*/  416Y, *CEL H =*, F12.2, 6X, *CORRECTION FACTOR TO H (F) FOR W (CE.)*/  416Y, *CEL H =*, F12.2, 6X, *CORRECTION FACTOR TO H (F) FOR W (CE.)*/  416X, *PDEL W =*, F12.2, 6X, *CORRECTION FACTOR TO H (F) FOR W (CE.)*/  417X, *W*, 41X, *M*, 9X, *E*/  418X, *W*, 41X, *M*, 9X, *E*/  41								
24 F FORMAT (1H1) 357 FORMAT (1H-, 7H******, 7810, 1H, ,410, 7H******) VIPRE 351 II=4H+(F) FPINT 363, II, IRLANK 381 FORMAT (1H-, ************************************								
357 FORMAT(11-,7H*******,3010,1H,,410,7H*******) 351 II=4H(F) FPINT 363,II,IRLANK 368 FORMAT(11-,*PARAMETERS OF THE TRANSFER FUNCTION FOR: *,410/43X,42) VIPRF 268 PRINT 355,XHFMAY,DELPS,OTLWE,DELWS,XHFCOR 369 FOOMAT( 375 F			246		IN SESSIFEAMEST	CITE		
351 II=4HF(F) FFRINT 363, II, IR, ANK  1297  383 FOOMAT(1H-,*PARAMETERS OF THE TRANSFER FUNCTION FOR: *,A10/43X,A2) VIPRF 1298 PRINT 355, XHFMAY, DELPS, OTLME, DELWS, XHFCOR  355 FOOMAT( 175X,*2*,13X,*-4*,8Y,*2 2*/17X,*H (F)=*,F12*2,6X,*MAXIMUM VALUE CF VIPRF 1300  1300  175X,*2*,13X,*-4*,8Y,*2 2*/17X,*H (F)=*,F12*2,6X,*MAXIMUM VALUE CF VIPRF 1301 2 HFF)-CD*,RF**.1**,0 C*, AF**,0 CRESCTION FACTOR TO H (F) FOR R (DB*)*/ VIPRF 1302 216X,*D=L F =*,F12*2,6X,*GORRECTION FACTOR TO H (F) FOR W (DB*)*/ VIPRF 1303 321X,*S*,41X,*M*,9X,*S*/ 416Y,*CEL H =*,F12*2,6X,*GORRECTION FACTOR TO H (F) FOR W (DB*)*/ VIPRF 1305  1305  1306  1307 616X,*D=L W =*,F12*2,6X,*GORRECTION FACTOR TO H (F) FOR W (CE*)*/ VIPRF 1307 621X,*S*,41X,*M*,9X,*S*/ 917X,*H (F)=*,F12*2,6X,*GORRECTION VALUE OF H (F)*/18X,*M*,2X, VIPRF 1309 4*C*,3C*X,*M*)  1310	1205		357	ENSMAT (1 La . 7H	******* - 3 A 1 O - 1 LI -	A10 7 HFF****		
383 FORMAT(1H-,*PARAMETERS OF THE TRANSFER FUNCTION FOR: *,A10/43X,A2) VIPRE 1298 PRINT 355, XHFMAY, DELPS, OTLME, DELWS, XHFCOR VIPRE 1299  350 FORMAT( 175X,*2*,13X,*-4*,8Y,*2 2*/17X,*H (F)=*,F12.2,6X,*MAXIMUM VALUE OF VIPRE 1300 2 H(F)-DR.RF. 1.0 G /MZ.,RE.(2X10 DYNES-CM.) /HZ.**/18X,*M*/ VIPRE 1301 2 H(F)-DR.RF. 1.0 G /MZ.,RE.(2X10 DYNES-CM.) /HZ.**/18X,*M*/ VIPRE 1302 216Y,*DEL F =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR R (DB.)*/ VIPRE 1303 321X,*S*,41X,*M*,9X,*S*/ VIPRE 1305 521X,*E*,41X,*M*,9X,*E*/ VIPRE 1305 521X,*E*,41X,*M*,9X,*E*/ VIPRE 1306 616Y,*DEL W =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (DB.)*/ VIPRE 1306 616Y,*DEL W =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (CE.)*/ VIPRE 1307 616Y,*E*,41X,*M*,9X,*E*/ VIPRE 1308 917Y,**H (F)=*,F12.2,6X,*CORRECTED VALUE OF H (F)*/18X,*M*,2X, VIPRE 1309 4*C*,3C*,*M*) VIPRE 1310 VIPRE 1311	1		351	TT=LHH(F) :FP	INT BAR TT TRI ANI	(410,7 H		
350 FOOMAT( 175x,*2*,13x,*-4*,8*,*2 2*/17x,*H (F)=*,F12.2,6x,*MAXIMUM VALUE OF VIPRF 1301 2 H(F)-DR.RE. 1.0 F./MZ.,RE.(2X10 DYNES-CM.) /HZ.**/18x,*M*/ VIPRF 1302 216x,*DRL F =*,F12.2,6x,*CORRECTION FACTOR TO H (F) FOR R (DB.)*/ VIPRF 1303 321x,*S*,41x,*M*,9x,*S*/ 416x,*REL H =*,F12.2,6x,*CORRECTION FACTOR TO H (F) FOR W (DB.)*/ VIPRF 1305 521x,*E*,41x,*M*,9x,*E*/ VIPRF 1306 615x,*DRL W =*,F12.2,6x,*CORRECTION FACTOR TO H (F) FOR W (CE.)*/ VIPRF 1307 615x,*E*,41x,*M*,9x,*E*/ VIPRF 1307 615x,*E*,41x,*M*,9x,*E*/ VIPRF 1307 617x,*E*,41x,*M*,9x,*S*/ VIPRF 1307 617x,*E*,41x,*M*,9x,*S*/ VIPRF 1309 917x,*H (F)=*,F12.2,6x,*CORRECTED VALUE OF H (F)*/18x,*M*,2x, VIPRF 1309 4*C*,3c*,*M*)  1310			383	FORMAT (1 H *P	ARAMETERS OF THE	TRANSFER FUNCTION FOR! *. A10/434. A21	VIPPE	
1300  1300  175X,*2*,13X,*-4*,8Y,*2 2*/17X,*H (F)=*,F12.2,6X,*MAXIMUM VALUE OF VIRE 1301 2 H(F)-DB.RF. 1.0 G /MZ.,RE.(2X10 DYNES-CM.) /HZ.*/18X,*M*/ VIRE 1302 216X,*DFL F =*,F12.2,6X,*ORRECTION FACTOR TO H (F) FOR R (DB.)*/ VIRE 1303 321X,*S*,41X,*M*,9X,*S*/ VIRE 1305 416Y,*CEL H =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (DB.)*/ VIRE 1305 521X,*E*,41X,*M*,9X,*E*/ VIRE 1305 616X,*DFL W =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (CE.)*/ VIRE 1307 621X,*E*,41X,*M*,9X,*E*/ VIRE 1307 621X,*E*,41X,*M*,9X,*S*/ VIRE 1308 917X,*H (F)=*,F12.2,6X,*CORRECTED VALUE OF H (F)*/18X,*M*,2X, VIRE 1309 4*C*,3C*X,*M*)  1310				PRINT 355 YHE	MAY . DEL ES . DEL WE .	ILL WS. YHECOP	VIPRE	
175x,*2*,13x,*-4*,8Y,*2 2*/17x,*H (F)=*,F12.2,6x,*MAXIMUM VALUE OF VIPRF 1301 2 H(F)-DR.RE. 1.0 F./MZ.,RE.(2X10 DYNES-CM.) /HZ.*/18X,*M*/ VIPRF 1302 216Y,*DEL F =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR R (DB.)*/ VIPRF 1303 321X,*S*,41X,*M*,9X,*S*/ 416Y,*CEL H =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (DB.)*/ VIPRF 1306 416Y,*CEL H =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (DB.)*/ VIPRF 1306 615X,*E*,41X,*M*,9X,*E*/ VIPRF 1306 615X,*DEL W =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (CE.)*/ VIPRF 1307 615X,*E*,41X,*M*,9X,*E*/ VIPRF 1307 615X,*E*,41X,*M*,9X,*S*/ VIPRF 1308 917X,*F* (F)=*,F12.2,6X,*CORRECTED VALUE OF H (F)*/18X,*M*,2X, VIPRF 1309 4*C*,3C*,*M*)  1310					7,000	, LE 110 7 X 1 1 100 C		
2 H(F)-CR-RF. 1.0 F /MT., RE. (2X10 DYNES-CM.) /HZ.*/18X,*M*/ VIPRF 1302 216X,*DIL F =*,F12.2,6X,*GORRECTION FACTOR TO H (F) FOR R (DB.)*/ VIPRF 1303 321X,*S*,41X,*M*,9X,*S*/ VIPRF 1304 416X,*CEL H =*,F12.2,6X,*GORRECTION FACTOR TO H (F) FOR W (DB.)*/ VIPRF 1305 521X,*E*,41X,*M*,9X,*E*/ VIPRF 1306 615X,*DIL W =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (CE.)*/ VIPRF 1307 615X,*S*/,41X,*M*,9X,*E*/ VIPRF 1307 615X,*S*/,41X,*M*,9X,*S*/ VIPRF 1307 917X,*F(F)=*,F12.2,6X,*CORRECTION FACTOR TO H (F) **/18X,*M*,2X, VIPRF 1309 4*FC*,3CX,*M*) VIPRF 1310 VIPRF 1311	1300				-4* . 8Y . * 2 2*/17	(.*H (F) = * . F12. 2. 6X . *MAXIMUM VALUE OF		
216 X, **D=L F = *, F12.2, 6X, **CORRECTION FACTOR TO H (F) FOR R (DB.) */ VIPRF 1303 321X, **S*, 41Y, **M*, 9X, *S*/ VIPRF 1304 416 X, **CEL H = *, F12.2, 6X, **CORRECTION FACTOR TO H (F) FOR W (DB.) */ VIPRF 1305 521X, **F*, 41Y, **M*, 9X, *F*/ VIPRF 1306 615 X, **DEL W = *, F12.2, 6X, **CORRECTION FACTOR TO H (F) FOR W (CE.) */ VIPRF 1307 621X, **S*, 41Y, **M*, 9X, *S*/ 917Y, **M*, 9X, *S*/ 917Y, **M*, 6X, **CORRECTION FACTOR TO H (F) **/18X, **M*, 2X, VIPRF 1309 917Y, **H (F) = *, F12.2, 6Y, **CORRECTED VALUE OF H (F) **/18X, **M*, 2X, VIPRF 1310 VIPRF 1311			2	H(F)-DR.RE.	1.0 6 /47 RE. (2)	(10 DYNES-CM.) /H7.*/18x.*M*/		
321%,*5%,41%,*M*,9%,*S*/ 416%,*CEL W =*,F12*2,6%,*CORRECTION FACTOR TO H (F) FOR W (DB.)*/ VIPRF 1305 521%,*F%,41%,*M*,9%,*E*/ 616%,*DEL W =*,F12*2,6%,*CORRECTION FACTOR TO H (F) FOR W (CE.)*/ VIPRF 1307 821%,*F%,41%,*M*,9%,*S*/ 917%,*H (F)=*,F12*2,6%,*CORRECTED VALUE OF H (F)*/18%,*M*,2%, VIPRF 1308 917%,*H (F)=*,F12*2,6%,*CORRECTED VALUE OF H (F)*/18%,*M*,2%, VIPRF 1310 1310			2	16x, *D=L P =*	,F12.2,6X, # CORRE	TION FACTOR TO H (F) FOR R (DB.)*/		
416Y,*CEL W =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (DB.)*/ VIPRE 1305 521X,*E*,41Y,*M*,9X,*E*/ VIPRE 1306 616X,*DEL W =*,F12.2,6X,*CORRECTION FACTOR TO H (F) FOR W (CE.)*/ VIPRE 1307 621X,*E*,41X,*M*,9X,*S*/ VIPRE 1308 917X,*E* (F)=*,F12.2,6Y,*CORRECTED VALUE OF H (F)*/18X,*M*,2X, VIPRE 1310 VIPRE 1310 VIPRE 1311								
1305  521x,*F*,41x,*M*,9X,*F*/ 615x,*FEL W =*,F12.2,6X,*GORREGTION FACTOR TO H (F) FOR W (CE.)*/ VIPRF 1307 821x,*F*,41x,*M*,9X,*S*/ 917x,*F' (F)=*,F12.2,6Y,*GORREGTED VALUE OF H (F)*/18X,*M*,2X, VIPRF 1309 4*C*,3CX,*M*)  1310  VIPRF 1311						TION FACTOR TO H (F) FOR W (DR.)*/		
616×,*PEL W =*,F12.2,6x,*CORRECTION FACTOR TO H (F) FOR W (CE.)*/ VIPRF 1307 021x,*E*,41x,*M*,9X,*S*/ VIPRF 1308 917x,*H (F)=*,F12.2,6x,*CORRECTED VALUE OF H (F)*/18X,*M*,2X, VIPRF 1309 47C*,3C*x,*M*) VIPRF 1310 VIPRF 1310 VIPRF 1311	1305		5	21x,*F*,41x,*	M*,9X,*[*/			
821%, *5*, 41%, *M*, 9%, *5*/ 917%, *H (F) = *, F12* ?, 64, *CORRECTED VALUE OF H (F) */18%, *M*, 2%, VIPRF 1308 VIPRF 1310  1310 VIPRF 1310			6	16x, * DEL W =*	,F12.2,6X,*CORRE	TION FACTOR TO H (F) FOR W (CE.)*/	VIPRE	1307
917X,*H (F)=*,F12.2,6Y,*C)?RECTED VALUE OF H (F)*/18X,*M*,2X, VIPRF 1310 **C*,3CY,*M*)  1310  VIPRF 1311			6	21x, *5*, 41x,*	M*,9X,*C*/			
**(*,304,***) VIPRF 1310 1310 VIPRF 1311					F12. 2, 6Y, *CORREC	TED VALUE OF + (F) */18X, ***, 2X,	VIPRF	1309
11.11			*	*C*,3CY, *N*)			VIPRF	1310
	1310							
IF(WE-LE-10-L) GO TO 375 VIPRF 1312				IF (WE.LE.13.L	) GO TO 375		VIPRF	1312

	₽30 <b>८</b> ₽≬₩	VT	₽₹F	74/?4	CPT = 1		FTN 4.5+414	08/16/77	13.11.28
				F (CATCON 50	C42 00 CATC2Y FO C	5) CO TO 775		VIPRE	1313
					G13. OR. CATGRY. ED. C	51 60 10 375		VIPRE	1314
		7		SOUNT SEL	OTE: THE CORRECTION	EACTOD FOR W	TS SET FOUNT TO 750		1315
							IS SET EQUAL TO ZER	VIPRE	1316
1315			1	EAST THEFT	W >10 PCUNDS.*/33X	, TET , 35X, TET/)		VIPRE	1317
								VIPRE	1318
		-			400 CT 0 1 DUEUT-0	7		VIPRE	1319
		-			(RS.GT.C.) 94FHI=0		, T	VIPRE	1320
		-			LC, SHEHI, XHELO, YHE	HI, F/PFLU, F/HF	41	VIPRE	1321
1320				ENGMAT (	7 6 V NO. 635 FACTO	D 101 EDVO DOLL	0554	VIPRE	1322
					.3, 6Y, *SLC?T FACTO			VIPRE	1323
			2	2. X, TE'=T, F12	.3,6x,*SLOPE FACTO	COEO PATTO LO	LL-UFF-7	VIPRE	1324
			3	20 x , T X = T , E 1 2	.7,6X,*NOCMALIZING	FREN RATIO, LIN	CH-EDEO BOLL-CEE*	VIPRE	1325
							CH-FRFO.ROLL-CFF*/	VIPRE	1326
1325					.2,6X,*LOCATOR FRE			VIPRE	1327
					.2,6x,*LOCATOR FRE	1. 1 UTGU - 4 CO. K.	1 LL-0FF 721x, 0 -1	VIPRE	1328
		7	07	RINT 362, AK,	-* E12 / 6V *CODDE	CTION EACTOR TO	n F' FOR & (F'= K X *		1329
		,				STIDE PAGINA I	F. FOR F (F. ZK X	VIPRE	1330
4770				PRINT 425,14F	*0*, EX, *F*, 2X, *0*)			VIPRE	1331
1338			8	KIM1 4534 161	LC, ABEBI			VIPRE	1332
								VIPRE	1333
	_	,	* *	*****	****			VIPRE	1334
	_		*		*			VIPRE	1335
1335			*	H (F)	¥			VIPRE	1336
10.	-		*		*			VIPRE	1337
				********	****			VIPRE	1338
					ISANEL) SC TO 356			VIPRE	1339
					INT 353, IPLANE, IFL	TTE		VIPRE	1340
1740		3			INT 387, IT, IRLAMK			VIPRF	1341
1					*FZMFHI=FMFHI			VIPRE	1342
								VIPRF	1343
			9	DELRS=C. FIF(	RS.GF.2.81 GO TO 3	70		VIPRE	1344
			1	CALL PLAT (XX,	EXMERS, 0. , DELRS, DB	MFRS, NMFRS)		VIPRE	1345
1345								VIPRF	1346
		7	7.	DELWS=C.15*CF	LWS			VIPRF	1347
								VIPRF	1348
				IF (CATERY. EO.	CE) XMEMUX=XMEMUX+	2.0		VIPRE	1349
				XMECCE= XMENYX	+CTLWS+PELRS			VIPRE	1350
13 50								VIPRF	1351
					MAX, DELWS, DELRS, XM			VIPRE	1352
		1122			LC, RMEHI, XMELO, XME	HI, FZMFLO, FZMF	HI	VIPRE	1353
		- 2	H-	FORMATI			CV MUNICIPALITY OF THE O	VIPRF	1354
			1	75 Y , * 2 * , 1 ? Y , *	-4*, AX, *2 2*/1/X,	** (F) = * , F12.2	,6x, *MAYIMUM VALUE O	VIPRE	1356
1355			2	M(F)=113.P	1.J G /H7./RE. (2X1	J UTNES-CM. )	M (E) FOR H (FR. )*/	VIPRE	1356
						I'M FACIUR IU	M (F) FOR W ([8.)*/	VIPRE	1358
			4	21 X , * S * , 41 X , *	E42 2 CV *CODDECT	TON FACTOR TO	V (5) 508 8 (58 )*/	VIPRE	1359
			5	21x,*C*,41x,*	NA ON ACA	TON PROTOCE IT	(F) FOR R (CP.)*/	VIPRE	1360
4750			7	47 4 4 7 7 7 4 1 4 1 4 1	E13 2 6V #CORPECTE	D VALUE OF M /	F1 # / 1 8 Y . * M * . 2 Y . * C * .	VIPRE	1361
13F0			9	39X, ***)	1 12.0 C 9 C 0 9 - 10 KELLE	A AMERICA OF THE	F)*/18X,*M*,2X,*C*,	VIPRE	1362
				PRINT 425,AME	I C. AMEHT			VIPRE	1363
			100	A. I - STOP MITT	L . , 31			VIPRE	1364
								VIPRE	1365
13€		-	* 4	* * * * * * * * * * * * * * *	******			VIFRE	1366
100		-	*		*			VIPRE	1367
				L(F)	*			VIPRE	1368
			*	5000	#			VIPRE	1769

	be OL Sve	NIDE	F 74/74	OPT=1	ETN 4.5+414	08/16/77	13.11.28
			********	********		W. T. D. C.	4370
1370			M=1HF			VIPRF	1370
1.70				CAMULT U. C	ORLEM, DBMOD1, NMODE1)	VIPRE	1371
						VIPRF	1372
			IF (COPLE .LT.		4=-21.0	VIPRE	1373
			VELCIL- IFER OX	TOKEFF		VIPRF	1374
1375			TE / TEL TTE TO	TCANICI & CC	TO 707	VIPRF	1375
7 . 1 -			IF (IFLITF.EC.			VIPRF	1376
		707	PRINT 246 PR			VIPRE	1377
		177	II=4HL(F) PR		LISTAGE	VIPRF	1378
			J=1HM \$K=1H \$		ODIEM VE TRIANE (4) M I M VIEGOE I I I	VIPPF	1379
1380		70-	FORMAT(	1. 5 1 9 0 9 1 9 0	OPLFM, XE, IPLANS(1), M, J, M, XLFCCR, J, L, J	VIPRE	1380
1				-1. ¥ EV ¥2	2*/17X,*L (F) =*, F12.2, 5X, *MAXIMUM VALUT	VIPRF	1381
			2   (5)-00.05	1 0 6 /47	DT (2V1) PVNEC-DW \ 147 #146V A4 CV I	CF VIPRE	1382
			336×,41/	10) 0 /1/0	,RI.(2X1) TYNES-DM. ) /HZ.*/18X,A1,2X,A		1383
				.F12.2.FY.*	CORRECTION FACTOR TO L (F) FOR DISTANCE	VIPRF	1384
1385					AIRGRAFT*/21X,A2,40X,A1,18X,A2/	VIPRF	1386
			6174. *I (F) = *.	F12.2.64.*0	ORRECTED VALUE OF L (F)*/19X,A1,2X,A2,	VIPPF	1387
			738X,111	, ,		VIPRE	1388
						VIPRE	1389
			FZLFLC=FN/2.0	CETLEHI= 2.	1*FN	VIPRE	1390
1300					HI \$XLFL0=XXLFL0 \$YLFHI=XXLFHI	VIPRE	1391
						VIPRE	1392
			IF (F2N.Er.J.)	CO TO 395		VIPRE	1393
			FLFHI=J. 23 SX	LFHI=0.70 \$	FZLF4I=1.42*FN	VIPRE	1394
						VIPRE	1395
1305		300	FRINT 380, FLF	LC, BLEHI, XL	FLO, YLFHI, F7LFLO, F7LFHI	VIPRE	1396
			ILINE1(1)=10H	FIRST RODY	FILINE1(2)=10H BENDING M	VIPRE	1397
			ILINE 1 (3) = 10H	UDE Ebeufi	FILINE1(4) = 8HNCY(HZ.) FILINE1(F)=1H	VIPRE	1398
			IEV=1HK EBSIN	T 441, FM, (I	LINE1(II), II=1,7), IFM	VIPRF	1399
AST 21 ( 1875 )			DRINT 425, OLF	LC, ALFHI		VIPRE	1400
14:1						VIPRF	1401
						VIPRE	1402
		*	********	********		VIPRE	1403
						VIPRE	1404
44.65			L (F)			VIPRF	1405
14 -=	C		2			VIPRE	1406
		*	*********	******		VIPRF	1407
						VIPRF	1408
			IF(F21.E0.C.)	60 10 319		VIPRE	1409
1410			CALL CUADIVE	LAHUUS C 3	DRL2F, DBMOD2, NMODE2)	VIPRF	1410
47.4			IF (COFL 2F.LT.			VIPRE	1411
			XL2FCF=XL2FMX			VIPRE	1413
			ACTION - ACTION	11/12		VIPRE	1414
			IF (IFLITE . NE.	TSANDI) GO	rn 393	VIPRF	1415
1415			FRINT 246 SPR			VIPRF	1416
-		797			\$L=24MC \$PRINT 383,II,K	VIPRE	1417
					DRL2F, XE, IPLAME(1), M, K, M, XL2FCR, K, L, K	VIPRE	1418
						VIPRE	1419
			FL2FLC=F2N/XL	SELO &ELSEH	I=F?N/XL2FHI	VIPRF	1420
1420			PRINT 380, "L2	FLO, PLZFHI,	(L2FL0,XL2FHI,FL2FL0,FL2FHI	VIPRE	1421
						VIPRF	1422
			ILINE 1 (1) = 16H	SECOND BUC .	FILINE1(2)=1CHY BENDING	VIPRF	1423
					SILIME1(4) = 9HENCY(H7.) \$ILIME1(5) = 1H	VIPRF	1424
			IEV=SHSW &EBI	NT 411, F2N,	(ILINI1(II), II=1,7), IFN	VIPRE	1425
1425			PRINT 425, 1L2	FLO, ALZEHT		VIPRF	1426

	PROCRAM	NIbs	F 74/74	0PT=1	FTN 4.5+414	08/16/77	13.11.28
						VIPRE	1427
						VIPRE	1428
		787	TEN=1HC STEE	CATGRY. FO. CO	A) IFN=3HC3A \$IF (CATGRY.EC.C48) IFN=3HC3F		1429
		30			SILINE1(2)=10HATURAL FRE	VIPRE	1430
1430					SILINE1(4)=1H)	VIPRE	1431
1456			ILINCI (SI-16	MGOL (III.)	51211121147-1117	VIPRE	1432
						VIPRE	1433
			IF (CATERY . EO	CIAL GO TO	398	VIPRE	1434
			IF (CATGRY.EC			VIPRE	1435
1435			IF (CATGPY.EC			VIPRE	1436
145			IF (CATGRY . EO			VIPRE	1437
			IF (CATERY . EQ			VIPRE	1438
			IF (CATCRY . EG			VIPRF	1439
			IF (CATERY . EC			VIPRF	1440
1440			IF (CATERY.EG			VIPRE	1441
144			IF COATGRY. EC			VIPRF	1442
			IF (CATERY . ER			VIPRE	1443
			1. (0410)	• ( ),		VIPRE	1444
		r *	*********	*******		VIPRE	1445
1445		0 *		*		VIPRF	1446
2 1 1 2		0 .	CATEGORY	1 4		VIPRF	1447
		r *		*		VIPRE	1448
			***********	*******		VIPRF	1449
			DELWE=C. FIF		GO TO 410	VIPRF	1450
1450			IF (WE.LT.210			VIPRE	1451
			C14AHJ=1.02			VIPRF	1452
			CO TO 410			VIPRE	1453
		400	CALL CUARINE	, DXC1A, XINC	LA, C1AAHI, C1AAWF, NC1A)	VIPRF	1454
					LA, DEL WF, CIAMWE, NC1A)	VIPRE	1455
14 FF		410	C1 MMXC = C1 AMA			VIPRF	1456
						VIPRF	1457
			IF (FCCAT1. FC			VIPRF	1458
			C10F7L=FCC0T	1/C1AYLO SC	LAFZH=FCCAT1/C1AXHI \$FC=FCCAT1	VIPRF	1459
						VIPRF	1460
14 €0						VIPRE	1461
					TILINE2(2)=10H MOUNTED 0	VIPRF	1462
					SILIME2(4)=1CHSTRUCTURE	VIPRF	1463
			ILINUS(5)=10	HIHBURCH IZ	FILINE? (6) = OHOLATORS) \$	VIPRE	1464
						VIPRE	1465
14 65			IF ITATERY . NE	.C1A) GO TO	415	VIPRE	1466
						VIPRF	1467
			DETK=CIVWXC	EXFO=LIVXFC	SXHI=C1AXHI SPLO=C1APLO SRHI=C1ARHI	VIPRF	1468
				AHI=C1AAHI	SETLO=C1AFTL SETHI=C1AFTH	VIPRF	1469
			CU TO FFE			VIPRF	1470
147			507HT 016 15	0.11.7 757 75	AND TOLTTO	VIPRE	1472
		41	PRINT 246 P			VIPRE	1473
					MT 383,II,L SPRINT 438,CATGRY (1),DELWE,WE,C1AMXC	VIPRE	1474
					CIAXLO, CIAXHI, CIAFZL, CIAFZH	VIPRE	1475
1475					T1, (ILINE1(K), K=1,7), L	VIPRF	1476
147			PRINT 425,01		1, (111111111)	VIPRE	1477
				- ' , L L - M ( L		VIPRE	1478
			IF (CATERY.E)	.C4A) SC TO	442	VIPRE	1479
			CO TO 435			VIPRF	1480
14 80						VIPRE	1481
1-10						VIPRE	1482
		C *	********	* * * * * * * * * *		VIPRF	1483

	PROCRAM	V	IPRE	74/74	OPT=1	FTN 4.5+414	08/16/77	13.11.28
		C	*				VIPRF	1484
		^	*	CATECODY	24		VIPRE	1485
44.05		r		CATEGORY	Z A **		VIPRE	1486
14 85		0					VIPRE	1487
				*********		TYUT-COAVUT BOLO-COADLO COUT-COADUT	VIPRE	1488
			431			SXHI=C2AXHI \$BLO=C2ABLO \$BHI=C2ABHI	VIPRE	1489
				ALC=CSAALC	AUT=0/APUT		VIPRE	1490
41.0				TE 4500AT4 50		DOAEN	VIPRE	1491
1490					C.O.) FCCAT1:		VIPRE	1491
				F2LU=F1:(;A11)	XTII ALYHIEL	CCAT1/XHI SFC=FCCAT1	VIPRE	1493
				TI THEOLOG		CTI THEOLON - 40H CTENOTHOE	VIPRE	1494
				ILINE 2(1)=10	BH (SEI UNLIAR )	\$ILINE2(2) = 10H STRUCTURE	VIPRE	1495
						*ILINE2(4)=10HNTED ON IN		
1405					HSIKIMENI P	SILIME2(6)=1CHANEL, ISCL. \$ILIME2(7)=2H)\$	VIPRF	1496
				GO TO 440			VIPRE	1498
							VIPRE	1499
		C		*********	*********		VIPRE	1500
45.00		-	-	*****	*		VIPRE	1501
1500				CATECODY	20 #		VIPRE	1502
			-	CATEGORY	ξ H		VIPRE	1503
				*********	********		VIPRE	1504
		1				CYLLT-CORVET CRIO-CORRIO CRIT-CORRET	VIPRE	1505
45.05			45			\$XHI=C2BXHI \$BLO=C2BBLO \$BHI=C2BBHI	VIPRE	1506
15 (5				VFC=CSEVFC	AHI=CZMAHI		VIPRE	1507
				TE /ERCATA E	C ) FCCATA	- C38 FN	VIPRE	1508
					C.G.) FCCAT1		VIPRE	1509
				FZLU=FGUPI1	XLC *FZFI=F	COAT1/XHI SEC=ECCAT1	VIPRE	1510
4540				TI THE 4 / 4 3 - 4	CHETOCT THET	STITNET (2) - 1 CHRIMENT DAN	VIPRE	1511
1510						TILINE1(2)=10HRUMENT PAN	VIPRE	1512
				IL IN-1 (3)=1	THEL SEPONAN	TILINE1(4)=7HCE(HZ.)	VIPRE	1513
				71 7152/11-1	NH 4 CCC OND ADV	SILINE2(2)=10H STRUCTURE	VIPRE	1514
							VIPRE	1515
4545						TILINE2(4)=10HNTED ON IN SILIME2(6)=10H, NON-ISCL. \$ILINE2(7)=2H)\$		1516
15 15					HS IKII . PAREL	31L1022(5)-10H,00N-13(L. 31L1NE2(7)-2H)\$	VIPRE	1517
				60 TO 440			VIPRE	1518
							VIPRE	1519
		2	* 4	*********	******		VIPRE	1520
4500		0			*		VIPRE	1521
1520		0	*	CATEGORY	7 1 #		VIPRE	1522
		-		CHIFGUST	*		VIPRE	1523
		•		*********	******		VIPRE	1524
				XX=2H3A			VIPRE	1525
15 25			446		TXLC=CBAXLO	3 AL O = C3 A AL O	VIPRE	1526
1.65				V-1-0.25061	THE TO SHALL	Jacob Maco	VIPRE	1527
				TE (WE . CT . 10	. C) SO TO 44	7	VIPRE	1528
				DE VAL CAVAVA	SPIN-CIAPIC	SXHI=C14XHI \$AHI=C1AAHI	VIPRE	1529
				GO TO LLA	S. FO-CIA. C.	SA HE GIGANI CAN I - GIANI	VIPRE	1530
1530				200 12 200			VIPRE	1531
1500			463	TE (WE . LT . 2"	0.0) GO TO 4	la La	VIPRF	1532
						3AR(NC3) BXHI=C3AXP(NC3) SAHI=C3AAP(NC3)	VIPRE	1533
				CO TO 448			VIPRE	1534
							VIPRE	1535
1535			444	CALL TERRET	N CWE . Y 1 . CBWE	(1), C3WE, 1, PFAK, C3AYMX, NC3)	VIPRE	1536
4.00						(1), G3WE,1, RLO, G3AP, NG3)	VIPRE	1537
						(1), C3 WF, 1, XHI, C3 AXF, NC3)	VIPRE	1538
						(1), C3WE, 1, AHI, C3AAF, NC3)	VIPRE	1539
					,,	,	VIPRE	1540

	boucata Al	F°F 74/74	CPT=1	FTN 4.F+414	08/16/77	13.11.28
1510					VIPRE	4544
20-0	400	AS EC-ECCATA ITS	CATCOV FC	G4A) FC=FCCAT2 \$IF(FC.EO.O.) FC=C3AFA		1541
	-4	F7LO=FC/XLC			VIPRE	1542
		TIEU-I ALL.	Z.11.1 - 1 7 . 1 - 1		VIPRF	1544
		TI THE 2 (1) = 1 14	REDUTEMENT	FILINES(2)=10H HARD MOUN	VIPRE	1545
1545				SILIMER(4) = 10HLATED SHEL	VIPRF	1546
				SILINE2(6)=2H)\$	VIPRE	1547
		CC TO 44C		111 12 10/- 1//	VIPRF	1548
					VIPRE	1549
					VIPRE	1550
1550					VIPRE	1551
	0	* * * * * * * * * * * * * * * * * * * *	****		VIPRE	1552
	•	4	*		VIPRE	1553
	0	* CATEGORY 3	p #		VIPRE	1554
	~	*	*		VIPRE	1555
15.55	~	*********	****		VIPRE	1556
	L ·	EEHSEXK EE			VIPRF	1557
					VIPRE	1558
		ILINE1(1)=10H	ILCHIST SHE	SILINE1(2)=10HLF FIRST R	VIPRE	1559
		IL TMF 1 (3) = 13H	ENDING MOD	FILING1(4) = FHE (HZ.)	VIPRE	1560
1560					VIPRE	1561
		IF (WF. 6T.11.0			VIPRE	1562
		SFC=CLBFC 3Er	I=CrbHI 2XF	O=C5XLO BXHI=CFXHI \$ALO=C5ALO \$AHI=C5AHI	VIPRE	1563
		DE OK = - 6 . C - 5 . C	*( NE-10.0)	75.	VIPRE	1564
		CC TC 460			VIPRF	1565
1565	4 1	46 IF (WE.LT.270.	-) GC TO 44	.7	VIPRF	1566
				(NO3) \$XL0=C3FX(NC3) \$XHI=C3FXF(NC3)	VIPRE	1567
			4 VHI=U33 VE	(NO3) PEAK=C3BYMX (NC3)	VIPRE	1568
	100	CO TO 449			VIPRE	1569
	1, 1	CALL TERPLIN	WE, Y1, 03WE	1), C3MF, 1, PFAK, C3BYMX, NC3)	VIPRE	1570
1577		CALL TERFLING	WE, X1, C3WE	1), C3WE, 1, PLC, C3BB, NC3)	VIPRE	1571
		CALL TERPLINE	WE, XI, CAME	1), C3WE, 1, PHI, C3BFF, NC3)	VIDEE	1572
		CALL TERRETA	WE , X 1 , C 3 W = (	1), C3WF, 1, XLO, C3BX, NC3)	VIPRE	1573
				1), C3WE, 1, XHI, C3 BXF, NC3)	VIPRE	1574
15.75				1), GTWF, 1, ALC, G38A, NG3)	VIPRF	1575
2010		CACE 1-KACTA	MC 9 X 1 9 1, ~4 ~ (	1), C3WE, 1, AHI, C3RAF, NC3)	VIPRF	1576
					VIPRF	1577
	41	2 FC-FCCAT1 STE	CATCRY FO	C48) FC=FCCAT2 \$IF(FC.EO.C.) FC=C3FFN	VIPRE	1578
		FZLO=FC/XLC =			VIPRE	1580
1500					VIPRE	1581
		ILINE2(1)=10H	(FOUTPMENT	SILING2(2)=10H HARD MOUN	VIPRE	1582
				FILINE2(4) = 10H-ISCLATED	VIPRE	1583
				*ILINE2 (6) = 5 HACK) \$	VIPRE	1584
		CC TO 640			VIPRE	1585
1 F AF					VIPRE	1586
					VIPRE	1587
	7	****	****		VIPRF	1588
	^	7	*		VIPRF	1589
	C	* CATECLEA E	*		VIPRF	1590
1500	C		*		VIPRF	1591
	S	********			VIPRF	1592
	42	7 PELWE = 0. FIF (			VIPRE	1593
		relwe=-6.0 FI			VIPRE	1594
4505		DELWE=-6.0-2.		15.	VIPRE	1595
1505	1.	PEAK=05MAX+DE		0-05410 1401-05401 1410-05410 510-	VIPRE	1596
		ELI-IDELI SEH	T-POURHT PXF	D=05XLO \$XHI=C5XHI \$ALC=C5ALO \$AHI=C5AHI	VIPRF	1597

	SOUCERN ATESE 24/24	OPT=1	FTN 4.F+414	8/16/77	13.11.28
	75,500,71, 50		0554	VIPRE	1598
	IF (FCCAT1.EC.				
	FZLO=FCCA11/X	LC SEZHI=FC	CCAT1/XHI \$FC=FCCAT1	VIPRE	1599
				VIPRF	1600
1600			ATT THEOLOGY ARRIGHT COLLEGE	VIPRE	1601
			SILINE2(2) = 10 HGHT EOUIP.	VIPRE	1602
			SILINE2(4)=10H PRIMARY S	VIPRE	1603
			FILINE2(6) = 10HY BRACKETS	VIPRE	1604
	ILINE 2 (7) = 2H)	3		VIPRE	1605
1ELE				VIPRF	1606
			SILINE1(2) = 1 CHURAL FREQU	VIPRF	1607
			SILINE1(4) = 10 HACKET AND	VIPRE	1608
			*ILINE1(6) = 1 CHCOMPINATIO	VIPRE	1609
	ILINE 1 (7) = 6 HM	(H7.)		VIPRE	1610
1=10	GO TO 445			VIPRE	1611
				VIPRE	1612
				VIPRE	1613
	C **************	*******		VIPRE	1614
	C *	*		VIPRE	1615
1615	CATEGORY 6	*		VIPRE	1616
	C *	*		VIPRF	1617
	U ############	* * * * * * * * *		VIPRF	1618
				VIPRE	1619
	477 IF (IFLITE . NF.	ISTNUT) DE	INT 246	VIPRE	1620
1620	ESINT 736			VIPPF	1621
			ACTION FOR CATEGORY 5: EQUIP. MOUNTED ON, OF		1622
			OKING RADAR PULK-HEADS*///	VIPRF	1623
		TEGORY Y(F)	=1 AT ALL FREQUENCIES SO THAT R(F)=Y(F)G(F		1624
	3) = C(F).*/			VIPRE	1625
1625			DLLOWS WHEN THIS CATEGORY IS SPECIFIEC:*//		1626
			TO H(F)*/45X,*M*/	VIPRE	1627
			S(T DENOTES PLATE THICKNESS) */23x, *C*4X*0*		1628
		LB IS VOOS	10 TO M(F)*/45X,*M*)	VIPRE	1629
	CO TO EOC			VIPRE	1630
1F30				VIPRE	1631
			THE STATE OF	VIPRF	1632
	447 IF (IFLITE.NE.		N1 245	VIPRF	1633 1634
	II=EHA (E) \$7			VIPRE	1635
	CRIMI 383,II,		THE CALLS DOTNE A 70 CATCOM	VIPRF	1636
16 35			GRY.EQ.C4B) PRINT 438, CATGRY	VIPRE	1637
			20, C5MAX, IPLANE (1), DELWE, WE, PEAK	VIPRE	1638
			352, II, PEAK, II, IPLANE (1), J, M, M	VIPRE	1639
	PRINT 380,5LO	, EHI, XLU, XI	119 - 7 - 119 - 7 - 11	VIPRE	1640
	537WT // 4 56	/T: T: F / / T T	TI-4 7) IEN	VIPRE	1641
1647	PRINT 441,FC,		,11=1,7),1FN	VIPRE	1642
	PRINT 425, ALO	, nHI		VIPRE	1643
	42" FORMAT (	C42 2 CV #1	ANTHUM VALUE OF VIEN-DO FOR* A40	VIPRE	1644
			MAXIMUM VALUE OF Y(F)-D3., FOR*, A10,	VIPRE	1645
	3*TYPE AIFCRAF	1.11970.44	ORRECTION FACTOR TO Y (F) FOR EQUIPMENT WE		1646
1645	AIDT, TICL W =T	4 8 100 84	04V *E* .44V *W* .26V .*E*/	VIPRE	1647
			21X,*E*,41X,*M*,26X,*F*/	VIPRE	1648
		F12.2,0x, T.	CORRECTED VALUE OF Y (F)*/18X,*M*,2X,*C*,	VIPRE	1649
	739 X , * M * )			VIPRE	1650
46.50	425 FORMAT (	F12 7 6V 1	FORM FACTOR LON-FEED ROLL-CEET/	VIPRE	1651
16:0			FORM FACTOR, LOW-FRED. ROLL-CFF*/	VIPRE	1652
	215 x, + p L P P P = +	, F12. 1, bx,	FORM FACTOR, HIGH-FRED. ROLL-OFF*)		1653
	4 PECTET 20 # 44	KLJOTKEL M	TEN CATEGORY *, A2, * EQUIPMENT MOUNTING IS	VIPRF	1654
	1PECIFIED)*//)			* 4: 187	1004

	PROFRAM	Albok	74/74	OPT = 1	FTN 4.5+414 0	8/16/77	13.11.28
		441	FORMAT (20X.*F	=*.F12.	,2,6x,7A10/21x,A3)	VIPRF	1655
1550			,	,	, you, made cany not	VIPRE	1656
						VIPRE	1657
						VIPRE	1658
	,	. *1	*******	****	*	VIPRE	1659
		*			*	VIPRE	1660
1660		*	L(F)-M(F)-H	(F)	*	VIPRE	1661
	1	. *			*	VIPRE	1662
	1	# 4	********	*****	f #	VIPRE	1663
		500	TWOR(1) = 2. * 9LF	LO STWO	08(2)=2.*9MFLO \$TWO8(3)=2.*8HFLO	VIPRE	1664
			F7(1)=F7LFL0 9	F7(2)=F	FZMFLO SFZ(3)=FZHFLO	VIPRE	1665
16 FF			XFERMX(1)=XLF(	CK GXE	TRMX(2) = XMFCOR \$XFERMX(3) = XHFCOR	VIPRE	1666
						VIPRE	1667
			FL X (1) = 4 T/N2 (1	MOG (1)	(XLFLO**ALFLO),1XLFLO*XLFLO)	VIPRE	1668
			FLX(2) = ATAN2(1	MU=(5)	(XMFLO**AMFLO),1XMFLO*XMFLO)	VIPRF	1669
			FLX(3) = ATAN2(1	MUB (3)	f(XHFLO**AHFLO),1XHFLO*XHFLO)	VIPRE	1670
1670						VIPRE	1671
					(2) = AMFLO \$ALPHA(3) = AHFLC	VIPRF	1672
			HILO(1)=0. \$H]	ru(5)=0	0. \$HILO(3)=0.	VIPRE	1673
			CIGN(1) = 1.0 35	164(5)=	=1.0 \$SIGN(3)=1.0 \$K=3 \$DP(4)=-1000.0	VIPRF	1674
						VIPRF	1675
1675						VIPRF	1676
			J=1 3CCMST=0.1			VIPRF	1677
			FRU=FMINGE SEN	u X = X[ - [	1)*F/LEL11	VIPRF	1678
			TE ( E 2 )	CO TO 6		VIPRE	1679
1680			IF (F2N.Er.C.)			VIPRE	1680
16.60					(Y1. GE. FMAX) GO TO 610	VIPRE	1681
		503	FRINT 605, 41, F		IENCY AT HUTCH THE MAYIMIN WALLE OF 12/51 0000	VIPRF	1682
		90 1	PS - # - C12 F - # L	7 * / # 7	JENCY AT WHICH THE MAXIMUM VALUE OF L2(F) OCCU	VIPRE	1683
					S LESS THAN THE CORRESPONDING FREQUENCY FOR L DGRAM ASSUMES THAT THE FREQUENCY OF THE MAXIMU		1684
16.85		-	M VALUE OF 120	FI WILL	FIT ASSUMES THAT THE FRE TOUNGT OF THE PAXIFO	VIPRE	1685
		L	CING FRECTENCY	OF 1 (F	() .*)	VIPRE	1686 1687
			ro To irre			VIPRE	1688
						VIPRE	1689
		517	TWOR(1) = 2. ]*BL	SELO SE	7(4)=FL2FL0 \$ALPHA(4)=AL2FL0	VIPRE	1690
1600			XFFRMX (4) = XL2F			VIPRE	1691
			FLX(4)=ATAM2(T	WOR (L) *	(YL?FLO**AL?FLO),1XL2FLC*XL?FLO)	VIPRE	1692
			V=4 4HILC(4)=0			VIPRE	1693
						VIPRE	1694
						VIPRF	1695
16 05		527	IF (FMAY. LE. FMI	KSF) SC	TO 625	VIPRE	1696
			CALL GEOTITS (F	Ell'uEC	SEL, FPO, FMAX, CONST, OF, XFERMY, TWOB, FLX, FZ,	VIPRF	1697
		1	FILO, SIGN, *LOP	A, II, J,	K,L)	VIPRF	1698
			FRC=FMAX			VIPRE	1699
						VIPRF	1700
1700			EMAX=XMFLC*FZM			VIPRF	1701
					1)=F7LFHI SALPHA(1)=ALFHI	VIPRF	1702
			+ [ 4(1) = + [ - 0   \ \	S(IMUH)	1)*(XLFHI**ALFHI),1XLFHI*XLFHI)	VIPRF	1703
			HILO(1)=F1 3SI	1-n/(1)=-	1.1	VIPRF	1704
1705			TE/E24 FO 3 3	() 70 6	<i>i.</i> **	VIPRF	1705
1/12			IF(F2N.F0.3.) IF(X1.LE.FRC)			VIPRE	1706
			TI CATOFF STALL	. O II. 6	3	VIPRE	1707
						VIPRF	1708
			FMAX=X1 TII=1			VIPRE	1709
1710				FFO.DEC	BEL, FRO, FMAX, CONST, CB, XFFRMX, TWOB, FLX, F7,	VIPRE	1710
- 1 - 3			range to the last to	1000	ALL TO MAY THOU TO THE CONTROL OF LX 1 P/9	VIPRE	1711

	PROCRAM VIPRE	74/74	DPT=1	FTN 4.5+414	08/16/77	13.11.28
	16710	,SIGN, ALPHI	A.TT.J.K.		VIPRF	1712
		FMAX SEMAX			VIPRE	1713
					VIPRE	1714
	635 TWCP	(4) = 2 . 0 FRL	PEHT SE7 (	4) =FL2FHI \$ALPHA(4) =AL2FHI	VIPRE	1715
1715				*(XL2FHI**AL2FHI),1XL2FHI*XL2FHI)		1716
		(4)=PI 4SI			VIPRE	1717
					VIPRE	1718
	647 II=1				VIPRF	1719
		CPOINTS (FF	PEO . DEC SE	L, FRO, FMAX, CONST, DP, XFFRMX, TWOB, FLX		1720
1720		SIGN, ALPH			VIPRF	1721
					VIPRE	1722
	FRC=	FMAX EFMAX	XMFHI*F7	MEHI	VIPRF	1723
		MAY. EC. FROT			VIPRF	1724
	09(2	) = XMFCCR 1:	II=1 \$L=?		VIPRF	1725
1725	CALL	GEGINTS (FE	REO , DECRE	L, FRO, FMAX, CONST, DB, XFERMX, TWOB, FLX	,FZ, VIPRF	1726
		, SIGN, ILPHI			VIPRF	1727
					VIPRF	1728
					VIPRF	1729
		FMAX TEMAX			VIPRF	1730
1730				) = FZMFHI \$ALPHA(2) = AMFHI	VIPRF	1731
				*(XMFHI**AMFHI),1XMFHI*XMFHI)	VIPRF	1732
				SIT=1 \$L=0	VIPRF	1733
	CALL	CEOINIS (E	RED, DECBE	L, FRO, FMAX, CONST, DB, XFFRMX, TWOB, FLX	,FZ, VIPRF	1734
	1HILO	, SIGN, DLPH	1,II,J,K,	L)	VIPRE	1735
1735					VIPRE	1736
	500			15.15	VIPRF	1737
		FMAX PFMAX			VIPRE	1738
		MAY. EG. FPO			VIPRF	1739
4715		) = YHFCCR \$			VIPRF	1740
1740	111710	CHOINIS (FF	KED , HELIE	L, FRO, FMAX, CONST, DB, XFFRMX, TWOB, FLX	,FZ, VIPRF VIPRF	1741
	THILU	, CICK . ILPH	911,0,5,	L)	VIPRE	1742
					VIPRF	1744
	EGG EBC-	FNAX SEMAX	EMAYCE		VIPRE	1745
1745				)=FZHFHI SALPFA(3)=AHFHI	VIPRF	1746
1, 6				*(XHFHI**AHFHI),1XHFHI*XHFHI)	VIPRE	1747
				\$II=1 \$L=0	VIPRE	1748
				L, FRO, FMAX, CONST, DB, XFERMX, TWOB, FLX		1749
		, SIGN, ALPH			VIPRF	1750
17 50	NPTC		,.,.,		VIPRE	1751
					VIPRF	1752
					VIPRF	1753
	<b>し 非安全有</b> 者	*********	******		VIPRF	1754
	r •		*		VIDRE	1755
17 ==	C . b	(F)	*		VIPRF	1756
	r *		*		VIPRF	1757
	U *****	* * * * * * * * * * * * * * * * * * * *	******		VIPRF	1758
					VIPRF	1759
					VIPRF	1760
17 67	_			SLXMAME(2)=10HY((H)7())\$	VIPRE	1751
	x = x €	TYSTEP=5.			VIPRE	1762
				23,520	VIDRE	1763
		MCPLT.EG. IS	STANA) 20	TO 459	VIPRE	1764
	IPLO	T=IPLCT+1			VIPRE	1765
17 65					VIPRF	1766
				SLYNAME (2) = 4H (8) \$	VIPRF	1767
	ILIN	=1(1)=10H(F	OUNDARY	SILINE1(2)=10HLAYER PSD) \$ILINE1(3	)=1H4 VIPRF	1768

	EDUCEVA ALESE	74/74 CPT=1	FTN 4.5+414	08/16/77	13.11.28
	J=10H	(=()F())== +N=GH P(=)	ng.	VIPRF	1769
				VIPRE	1779
1770				VIPRE	1771
	450 TWOGO	F=2. * OPF *FLXPF=PT-AT	AN2 (TWOBPF* (XPF**APFHI),1XPF*XFF)	VIPRE	1772
	rn 46	C II=1,MPTS	ALL THOSE TOTAL ALL THE ALL TH	VIPRE	1773
		9 x 1 = = = = 0 (TI) 9 IF (X1.6	E.EMINPE) CO TO 463	VIPRE	1774
	Y1=Y1,	/ E X E E		VIPRE	1775
17-5	X1=PF	WEG+21.* ALOG10 ((PI-4T	AN? (TWORPF*(X1**APFHI),1X1*X1))/FLXPF	) VIPRE	1776
	461 PBTL(	II) = X 1		VIPRE	1777
				VIPRE	177 B
	4 F 3 L = 7			VIPRE	1779
	DO TEL	IT=K,NPTS		VIPRE	1780
1780	L = L + 1	SX1=FRFC(II) 3FSFL(L	) =X1	VIPRE	1781
	Y 1 = 0 F M	MLD + 23. * AFUE 10 ((b1-41)	ANS (TWORPE* (X1**APFHI),1X1*X1))/FLXPF	VIPRE	1782
	4F- D3-L()	II) =×1		VIPRE	1783
				VIPRE	1794
4705				VIDEE	1785
1785	It (It)	LITE. NE. ISAMPL) GC TO	465	VIPRF	1786
				VIPRE	1787
	550 5			VIPRF	1788
	FRO=F			VIPRE	1789
1700	GF, FK,=FF	U+U(K41+EBU &IE(E30.	T. FMAXPF) GC TO 472	Alber	1790
1.00		FSFL(L)=FRO		VIPRE	1791
	60 10	407		VIPRE	1702
				Aloke	1793
	4.72 CALL (	CATELA (ECC) COOR 1 DO	THOS A DOC 1 MAG A STORE A ARENT	VIPRE	1794
1700	4 FMINE	ENAVOE DOMIN C TETOS	FMDR, O., PPF, O., XPF, C., FZPF, C., APFHI,	VIPRE	1795
11	II WINE	, FMAYPF, D3MIN, C, IFIRS	51,J, M, 1H , 2HH1)	VIPRE	1796
				VIPPF	1797
	TECINO	TELT. SG. IFLANK) GO TO	475	Albet	1798
		NOPL (IPLCT) SGO TO 47		VIPPF	1799
1950		The Collective and the Av		VIPRE	1800
				VIPRE	1801
	. ******	**********		VIPRE	1803
	~ *	*		VIPRE	1804
	° * S(F	*		VIPRE	1805
1975	~ *	*		VIPRE	1806
	- 444444	* * * * * * * * * * * * * * * *		VIPRE	1607
		=0 4TF(INOPLT.FQ.I3L	NK) GO TO 457	VIPRE	1808
		=1 *II=5H S(F)		VIPRE	1609
1017	IF (IFL	ITE.FO. ITUFET. AVE. SRI	FO.LT. SDELTA) GO TO 450	VIPRF	1 8 1 0
1013	IF (IFL	TIE.SC. ITURP) CO TO 4	50	VIPRF	1811
	PRINT	45 F, II, IX, SPLC, PRF, SE	BHI, SXLO, YFF, SXHI, SF?LO, F?PF, SFZHI, SALC,	VIPRF	1812
	IAO FHI,	Subl'or ME : " South		VIPRF	1813
	454 FURMAT	(1F1, *PARAMETERS*, 3X,	*D(F)*,8X,A10/28X,A2/	VIPRF	1814
1915	10 2 9 4 4	=*,11X,G12.7/5X,*3'=*	,611.5,612.3/	VIPRF	1815
1	20V #F#	-* (11 E (12 E (2)	,G11.3,G12.3/8X,*F =*,11X,G12.5/9X,*O*/		1816
	4611 3	C12 3/2V #MAV VAL -#	74X,*ALPHA =*,11X,612.3/4X,*ALPHA*=*,	VIPRE	1617
	M=4HDO	G12.3/2X, *MAX. VAL. =*, TH 460 TO 452	711.44,012.41	VIPRF	1818
		111 35 17 45%		VIPRF	1819
1820	4F PRINT	451.II.IX.BEF.SOHT.YD	F, SXHI, F7FF, SF7HI, APFHI, SAHI, PFMDE,	VIPRF	1820
	1505AK		. A SOUT A CIT & SEVET & G. LEUT & SHET & BERRE	VIPRF	1821
		(1F1, *PAPAMETERS* - 3X -	*D(F)*,8x,A10/27x,A2/	VIPRE	1822
	1 A X , * E "	=*,G11.3,G12.3/8Y,*X*	=* · G11 · 3 · G12 · 3/	VIPRE	1824
	28x, *F"	= * , 611.4, G12.4/4x, * AL	PHA = * , G11 . 3 , G12 . 3 /	VIPRE	1825
				4	* ( - )

	BBUCKUM AlbSE	74/74	CPT = 1	FTN 4.5+414	8/16/77	13.11.28
1825	72Y.*M	A	,611.4,612.4)		WIDDE	4.006
10,	M=2HH		9011.09012.47		VIPRF	1826
		1			VIPRF	1827
					VIPRF	1828
	45° K=7H	7 (F) 4L:	-EU D(C)		VIPRE	1829
1877					VIPRF	1830
10		790,II,K			VIPRE	1831
	1.64 EODMA	461,II,K	FO FOLLENON AND A	* OV 45 40V 440 44V 45 40V 45	VIPRE	1 832
	CEINT	(1FF TV T	TERFLUE VIT (H/.)	*,9X,A5,10X,A10,11X,A5,12X,A1C)	VIPRF	1833
		45F, IX, I			VIPRE	1834
1835	450 FURA	(56x,05,	15 X, A2, 17X, A2)		VIPRF	1835
1000	LEZ CALL	VEF CELLY C	מדמו ובמת במת	CREAK CALO CALL CUI COLO	VIPRF	1836
	105710	CE THI CAL	O CAUT NA	SPEAK, SXLC, SXHI, SBLO, SBHI,	VIPRE	1837
	186350	, SE TEL , SAI	LO, SAHI, M)		VIPRF	1838
	00 %	7 K=1, NPT	-		VIPRE	1839
1840					VIPRE	1840
11.00	457 CONTI		· ( · ) UBSDF (K) = 0		VIPRF	1841
	27 10111	14.6			VIDRE	1842
					VIPRF	1843
	CALL	TWOELN (FIE	O POSDI DOFI .N	PTS, FMINGE, FMAXGE, DBMIN, CYVAL)	VIPRE	
1865	, , , ,	THO CHAIN	7, C 3, L , 7 L , 10	- 1 3 9 F TINGT 9 F TAX THE 9 D SHI TY 9 T TVAL	VIPRE	1845
	TEETN	CPLT.FO.T	LANY) 50 TO 47	5	VIPRE	1847
			- , ,,, ,,, ,,,		VIPRE	1848
					VIPRE	1849
	K=2HH	T			VIPRE	1850
1850	IF(JF	LITE.SC. IS	EUF TT . AND . SATED	.LT.SDELTA) GC TO 456	VIPRE	1851
			TUR P) 60 TO 456		VIPRE	1852
	K = 4 H F				VIPRE	1853
	IF (SF	7LO.LT.FM	INGE  60 TO 456		VIPRE	1854
				n),1SXLO*SXLN)	VIPRE	1855
1955			FLX1=FLX1+2.0*		VIPRE	1856
				X1)) \$X2=SFZLC/F7PF	VIDRE	1857
	Y 2 = PF	10 4. 35 + F3 M	DG10 ((PI-ATAN?	(TWOBPF*(X2**APFHI), 1X2*X2))/FLXPF)	VIPRE	1858
	V V V L =	X1+X3 =001	L CURVE (SFZLO,	YVAL,1,1)	VIPRE	1859
					VIPRE	1860
1860				SAHI),1SXHI*SXHI)	VIPRF	1861
	X1=5P	E DK +2 * AL	OG10 (PI/(2.*FL	X1))	VIPRF	1862
	¥2=PF	PLU+50. * VI	OGIO (PI-ATANS	(TWORPF*(X2**APFHI),1X2*X2))/FLXPF)	VIPRE	1863
	Y V A L =	X1+X2 COV	L CURV (SFZHI,	YVAL,1,1)	VIPRE	1664
					VIPRE	1865
1965		FEIGHI(HI.			VIPRF	1866
				XHI, SFZLO, SFZHI, SALO, SAHI, FMINGF,	VIPRE	1867
	1FMAYS	F, YVAL, NYI	11L,K)		VIPRF	1868
					VIPRF	1869
	CALL	KUPL (IPL	(1)		VIPRE	1870
1870					VIPRF	1871
	C ******				VIPRF	1872
	C *	*******	*		VIPRE	1873
	○ * H(I	= )	*		VIPRE	1874
1875	· *	,	*		VIPRE	1875
1645		*******	*****		VIPRE	1876
					VIPRF	1878
					VIPRE	1879
	477 IPLOT	TPICT+1			VIPRE	1880
1880			) (()F()) 3LYNA	4F(2)=FH-F(3)*	VIPRE	1881
				E1(2)=10HUENCY TRAN	VIPRE	1882
					The state of the s	

	PROGRAM	Alboi	74/74	OPT=1	FTN 4.5+414	08/16/77	13.11.28
					\$ILINE1(4)=5HION)\$	VIPRF	1883
					*ITITL1(2)=1(HTRUCTURE-F	VIPRE	1884
4005			ITITL1(3)=9H		153 00	VIPRF	1885
1885			II=16F(H()F()	1)=4 .7=4H H	(F) 115.	VIPRE	1886
						VIPRF	1887
		1.7-	V-C SCONST-A	AT PERO-EMI	NHF SFMAX=XHFLC*FZHFLO \$L=0	VIPRE	1889
			K=K+1 FFSPL(		AND SEMAX-XHELCTEZHELO SE-O	VIPRE	1890
1800		400			O.LT.FMAX) GO TO 480	VIPRE	1891
10.4			IF (L.FC. 1) G		100 10 403	VIPRE	1892
			L=1 SERO=FMA		4F	VIPRE	1893
					E7.X1) GO TO 480	VIPRE	1894
					X1 \$60 TO 480	VIPRE	1895
1 ACE						VIPRE	1896
						VIPRF	1897
		505	CALL CREFUNCE	FSFL, DBSPL,K	,XHEGOR,BHELC, BHEHI, XHELO, XHEHI, FZHELO,	VIPRF	1898
					F, FMAXHF, DBMIN, C, IFIRST, II, J, 1H, 4HECTH)	VIPRE	1899
						VIPRF	1900
1010						VIPRE	1901
			IPHASE=1 FIF	I.EM. TJCONI)	BLANK) GO TO 508	VIPRF	1902
			IF (CATGRY.EC.		507	VIPRE	1903
			Ibhvae = 0 &00	10 520		VIPRE	1904
						VIPRE	1905
1000		503	YVAL = 1 . 1 0 * F M			VIPRE	1906
					AL=DRMIN+YSTEP+1.5*DYVAL	VIPRF	1907
			TALL PLMFSS (			VIPRE	1908
			CALL FLPEAL (			VIPRE	1909
4040					3,"ABUT","APUT")	VIDEE	1910
1910			CALL FLMISS	5 5 , +171,	XVAL, YVAL-0.5*DYVAL)	VIPRE	1911
			CALL CIMECCI	" (0) - 6" + 10	C VVAL VVAL -4 E*DVVAL	VIPRF	1912
			CALL FLREAL (F	C 11 " A FILT"	C, XVAL, YVAL-1.5* DYVAL)	VIPRE	1914
					,"ABUT","ARUT")	VIPRE	1915
1915					XVAL, *VAL-2.C*CYVAL)	VIPRE	1916
					3, XVAL, YVAL-3.0*DYVAL)	VIPRE	1917
			PALL PLREAL (			VIPRE	1918
					3,"ARUT","ARUT")	VIPRE	1919
			CALL PETCHT	0.7*HITE1)	•• • • • • • • • • • • • • • • • • • • •	VIPRE	1920
1923			CALL PLMESS (	" (E) f",+100	, XVAL , YVAL-7.5 FDYVAL)	VIPRE	1921
			CALL PLICHTO	HITE1)		VIPRE	1922
					LL RLMFSS(IFLITE, 10, XVAL, YVAL-4.5°CYVAL)		1923
			CALL FASALF!			VIPRE	1924
			CALL REIGHT (			VIPRE	1925
1925			CALL FNDFL (IF	PLCT)		VIPRF	1926
						VIPRE	1927
		r *:				VIPRE	1928
			**********			VIPRE	1929
4030		L *	C151	*		VIPRF VIPRF	1930
1030			r(F)	*		VIPRE	1932
		r *:	*******	********		VIPRE	1932
						VIPRE	1934
						VIPRE	1935
1035		707	IPLOT= IPLCT+	1		VIPRE	1936
						VIPRF	1937
			LYNAMF (1)=10	H(G()F())-D	3LYNAME(2)=10H(R)(()RE.1	VIPRE	1938
					£LYNAMF (4) = 7 HH) 7 () ) \$	VIPRE	1939

	PROCRAM	Albék	74/74 OPT=1	FTN	4.5+414	08/16/77	13.11.28
			TI THE 1 (1) - 10H (DESDONSE	TILINE1(2)=10HOF PRIMARY		VIPRF	1940
1010			ILINE 1 (3) = 10H STRUCTUR			VIPRE	1941
1969			ITITL1(1)=2H \$ \$YSTFP=			VIPRE	1942
			1111F1(11=5H # 242(H)=	- · J		VIPRE	1943
			COINT 266 IDDINT 757 T	CLANC TELTTE		VIPRE	1944
			PRINT 246 PRINT 353,I	-LANE, IFLITE		VIPRE	1945
1015			TE (52) NE 2 \ 60 TO 54			VIPRE	1946
1945			IF (F2N.NE.0.) GO TO 51	4		VIPRE	1947
			FRINT FOG	FDC# 77 #D/F\# EV #1 /F\# EV	***** EV## (E)		1948
		200		ERS*,3X,*P(F)*,5X,*L(F)*,5X	, . w (L) . , 5 x . L (L) .	VIPRE	1949
			II=1HP \$K=2HR*	I O BUELO		VIPRE	1950
1050		C 4 4	PRINT 511, II, BLFLO, BMF			VIPRE	1951
10FF		511	FORMAT (9X, 44, F18. 3, 3F9			VIPRE	1952
		F 4 3	PRINT 512, K, RPF, RLFHI,			VIPRE	1953
		71:	FORMAT (9X, 14, 5F9. 3)			VIPRE	1954
			II=1HX 4K=2HX	10 415 0		VIPRE	1955
40.55			PRINT 511, II, XLFLO, XMF			VIPRE	1956
19 55			PRINT 512, K, XPF, XLFHI,	A TENT , A TENT		VIPRE	1957
			II=1HF \$K=2HF \$L=1H0	NELO EZUELO		VIPRE	1958
			PRINT 511, II, FZLFLO, FZ			VIPRE	1959
		547				VIPRE	1960
40.00		71)	FORMAT(1(X, A1)	T ETMEUT ETHEUT		VIPRE	1961
10.50			PRINT 512, K, FZFF, F7LFH	1,-2-61,-7661		VIPRE	1962
			PRINT 513,L			VIPRE	1963
			II=1HA \$K=?HA	LO: AHELO		VIPRE	1964
			PRINT 511, II, ALFLO, AME			VIPRE	1965
4065			PRINT 512, K, APFHI, ALFH	I, Ameni, Aneni		VIPRE	1966
19 65			PRINT 512, II, PEMPP, XLE	COR VMECOR VHECOR		VIPRE	1967
			CO TO 518	COX, XHE GOX, XHE COX		VIPRF	1968
			60 10 -1-			VIPRE	1969
						VIPRE	1970
1970		E 4 %	PRINT 521			VIPRE	1971
1916				FR9*,3X,*P(F)*,5X,*L(F)*,5X	.*! (F) * . FX .	VIPRE	1972
			1*M(F)*,5X,*H(F)*/37X,*		,, , , , , ,	VIPRE	1973
			II=1HE KK=2HB			VIPRE	1974
			PRINT 511, II, BLFLO, BLZ	FLO. BMFLO. BHFLO		VIPRF	1975
1975			PRINT F12, K, RPF, BLFHI,			VIPRE	1976
1975			II=1HX SK=2HX			VIPRE	1977
			PRINT 511, II, XLFLO, XL2	FI O. X ME. O. XHELC		VIPRE	1978
			PRINT 512, K, XPF, XLFHI,			VIPRE	1979
			II=1HF \$K=2HF * \$L=1HC	ACC1112, A 1112, A11		VIPRE	1980
1080			PRINT 511, II, F7LFLO, FL	2F1 0. F7MF1 0. F7HF1 0		VIPRF	1981
1 = 6			PRINT 513,L	.c. 207 2071		VIPRE	1982
				I, FL2FHI, FZMFHI, FZHFHI		VIPRE	1983
			PRINT 513,L	2, 22, 112, 12, 12, 12, 12		VIPRE	1984
			II=1HA \$K=2HA			VIPRE	1985
1985			PRINT 511, II, ALFLO, ALZ	FLO. AMELO. AHELC		VIPRE	1586
190			PRINT 512, K, APFHI, ALF			VIPRE	1987
			II=4HMAX.			VIPRE	1988
				COR, XL2FCR, XMFCOR, XHFCCR		VIPRF	1989
			//			VIPRE	1990
1991		519	TT=5H F(F) \$K=5H 1-M-1	(F) \$L=5H G(F) \$M=10H G SO.	/HZ.	VIPRF	1991
4 2 11		- 4		T 461, II, K, L, M \$PRINT 455, I		The Property of the Parket of	1992
				,		VIPRF	1993
						VIPRF	1994
		527	GALL THOFUN (FRED. PRET.	DECBEL, NPTS, FMINGE, FMAXGE, D	BMIN, DYVAL)	VIPRE	1995
1905		- 0			•	VIPRE	1996
-							

TECATORY.NI.CIR) GO TO 774		PROCERM WIERF 74/74 OPT=1	FTN 4.5+414	08/16/77	13.11.28
		TERRATERY AL CARA CO TO 774		VIPRE	1997
1998   1999   1999   1999   2000   19487=1   574LL ENOPL(19LOT)   1075   1099   2000   109487=1   574LL ENOPL(19LOT)   1099   2000   1099					
77%   IMPASS   STE(INDEL(ISLOTH)   1000		THE SHOPELINGELL SPOT IN ONE			
10MAST=1 FSALL EMPRICIPATY   VIPEF   2003   VIPEF   2003   VIPEF   2003   VIPEF   2003   VIPEF   2003   VIPEF   2003   VIPEF   2005   VIPEF		774 TOWARD - O STEETNORIT FO TRIANKS GO TO 775			
	20.00				
10   10   10   10   10   10   10   10	5000	1-MS -1 . THEE ENTITE ETT			2002
Page					2003
Page		○ 非有实在文化文化文化文化文化文化文化文化文化文化文化文化文化文化文化文化文化文化文化		VIPRF	2004
				VIPRF	2005
	2005	r * Y(E) *		VIPRF	2006
TPO.DT.IPL.CT.H   LYAAM'(1)=10H(Y()F(1)-0   TLYNAME(2)=10H(R()RE.1.0 SLYNAME(3)=4HCN)				VIPRF	2607
LVAMP(1)=104(Y()F())-0   LVMMME(2)=104(G()RE.1.0 SLYMAPE(3)=44HO))   VIDRE   2010		○ ☆ 查查 章 法 章 章 章 章 章 章 章 章 章 章 章 章 章 章 章 章		VIPRE	2008
LYMAMF(1)=10H(Y()F(1)=7 *LYMAME(2)=10H(B()FE.1.C \$LYMAMF(3)=4H())? YIDRF 2011   UIDRF (1)=10H(TANNFE SILINE(2)=10H(B()FE.1.C \$LYMAMF(3)=4H())? YIDRF 2013   VIDRF 2013   VIDRF 2013   VIDRF 2014   VIDRF 2015   VIDRF 2016   VIDRF 2017   VIDRF 2018   VID		IPLOT=IPLCT+1			5003
		LYNAMF(1)=10H(Y()F())-0 *LYNAME(2)=10H(B()RE.	1.0 \$LYNAME (3) =4H())	4 VIPRF	2010
CO 77%	2010	ILINE 1 (1) = 10H (TRAMSFER SILIME 1 (2) = 10HFUNCTIO	N F SILINF1(3)=4HOR)	# VIPRF	2011
				VIPRF	2012
Tight   Tigh		CO 771 II=1,7			
Time		77 ITITL1(II)=ILINE?(II)			
X1=CATGRY_ST_(CATGRY_EC, 74A) X1=2H3A	201F	JI=1CH(Y()=())=\$ \$K=10H Y (F) DB. \$YSTEP=5.0			
2019					
1		IF (CATCRY.SO.C4B) Y1=2H33			
2020   778   IF (CATGRY.NE.CE) GO TO 785   VIPRF   2023					
TO 78C       1     1   1   1   1   1   1   1					
10 78C       1    1,   1,   1   1   1   1   1	2020	775 IF (CATERY.NE.CE) GO TO 785			
2025 2025 2025 2026 2027 2027 2028 2028 2028 2028 2029 2020 2020 2020					
2025  2026  2027  785 CALL CNFFUN(FREO, FREL, NCTS, PEAN, BLO, EHI, XLC, XHI, FZLO, F7HI, ALC, AHI, VIPRE 2027  785 CALL CNFFUN(FREO, FREL, NCTS, PEAN, BLO, EHI, XLC, XHI, FZLO, F7HI, ALC, AHI, VIPRE 2028  1FMINGE, FMAXGE, DBMIN, 1, 1FIPST, II, V, X1, 4HROTH) VIPRE 2029  VIPRE 2030  2030  2031  2031  2031  2041  2040					
VIPE   2026   VIPE   2027   2027   2027   2027   2027   2027   2027   2027   2027   2027   2027   2027   2027   2027   2027   2028		783 DREL(II) =C.			
785 CALL CRFUN (FRED, FDEL, NOTS, PEAK, BLO, EHI, XLC, XHI, FZLO, F7HI, ALC, AHI, VIPRF 2028  16MINGF, FWAXGF, DBMIN, 1, IFIPST, II, F, X1, 4HROTH)  2021  2021  2022  2023  2024  2026  2027  2026  2027  2028  2027  2028  2028  2028  2029  2029  2020  2020  2020  2021  2021  2021  2022  2023  2024  2026  2027  2026  2027  2028  2027  2028  2029  2029  2020  2020  2021  2021  2022  2023  2024  2026  2027  2026  2027  2027  2028  2027  2028  2027  2029  2029  2029  2020  2020  2021  2021  2022  2023  2024  2025  2026  2027  2027  2028  2027  2028  2027  2028  2027  2028  2027  2028  2027  2028  2028  2028  2028  2028  2028  2028  2029  2029  2029  2029  2029  2029  2020  2		CO TO 787			
2026 2027 2027 2027 2027 2028 2028 2028 2029 2029 2020 2020 2020	20 25				
1					
2030 2037  2037  2038  2039  2040  2		785 CALL CAFFUM (FREO, CACL, MOTS, PEAK, BLO, EHI, XLC, X	HI, FZLO, F/HI, ALC, AHI	, VIPRE	
2030 2031 2031 2031 2031 2031 2031 2031		1 FMINGE, FMAXGE, NAMIN, 1, IFIPST, II, K, X1, 4HRO (H)			
IF (CATCRY.NF.CAA.ANN.GATGRY.NE.C4B) GO TO 789					
TOHASE=0 @GC TO 8GO	50.30				
2035			:		
789 CALL ENDPL(IPLCT)  VIPRF 2035  VIPRF 2036  VIPRF 2037  VIPRF 2037  VIPRF 2038  C * R(E) * VIPRF 2039  C * R(E) * VIPRF 2040  C * * * * VIPRF 2040  C * * * * VIPRF 2040  C * * * * VIPRF 2040  VIPRF 2041  ***********************************		IDHVSE=0 400 10 800			
VIPRF   2036   VIPRF   2037   VIPRF   2037   VIPRF   2038   VIPRF   2038   VIPRF   2038   VIPRF   2039   VIPRF   2039   VIPRF   2039   VIPRF   2040   VIPRF   2040   VIPRF   2040   VIPRF   2040   VIPRF   2040   VIPRF   2040   VIPRF   2041   VIPRF   2041   VIPRF   2042   VIPRF   2042   VIPRF   2044   VIPRF   2044   VIPRF   2045   VIPRF   2045   VIPRF   2045   VIPRF   2046   VIPR		ZOR CALL ENDRI (IRI CIA			
VIPRE   2037   VIPRE   2038   VIPRE   2038   VIPRE   2038   VIPRE   2039   VIPRE   2039   VIPRE   2039   VIPRE   2040   VIPRE   2040   VIPRE   2040   VIPRE   2041   VIPRE   2041   VIPRE   2041   VIPRE   2041   VIPRE   2042   VIPRE   2042   VIPRE   2044   VIPRE   2044   VIPRE   2044   VIPRE   2044   VIPRE   2044   VIPRE   2045   VIPRE   2046   VIPR					
2010 2018 VIPRE 2038 VIPRE 2039 VIPRE 2039 VIPRE 2039 VIPRE 2039 VIPRE 2040 VIPRE 2041 VIPRE 2041 VIPRE 2041 VIPRE 2041 VIPRE 2042 VIPRE 2043 VIPRE 2044 VIPRE 2044 VIPRE 2044 VIPRE 2045 VIPRE 2045 VIPRE 2045 VIPRE 2045 VIPRE 2045 VIPRE 2045 VIPRE 2046 VIPRE 2046 VIPRE 2046 VIPRE 2046 VIPRE 2046 VIPRE 2046 VIPRE 2047 VIPRE 2049 VIPRE 2049 VIPRE 2049 VIPRE 2049 VIPRE 2049 VIPRE 2049 VIPRE 2050 V	50.50				
2040 2040 2040 2040 2040 2040 2040 2040		U *************			
2040 2040 2040 2040 2040 2040 2040 2040					2039
2040 2040 2040 2040 2040 2040 2040 2040				VIPRE	2040
THE STATE OF STREET STREET   VIEW	2010			VIPRF	
1921   1910	21.41.	***     *     **     **     **     **     **     **     **     **     **     **     **     **     **     **     **     **     **     **     **      **		VIPRE	2042
PRINT 246 PRINT 353, PLAME, IFLITE  II=6H V (F) 5K=7H G(F) 5L=5H R(F) 4M=10H G 90./HZ. VIPRF 2045  PRINT 790, II, K, L  700 FORMAT(1H-,*VALUES CALCULATED FOR FUNCTIONS: *,7410) VIPRF 2047  PRINT 461, II, K, L, M  VIPRF 2048  VIPRF 2049  VIPRF 2049  II=2H3A SIF (CATGRY, E0.04A) GO TO 793  VIPRF 2050  II=2H3B 4IF (CATGRY, E0.04A) GO TO 793  VIPRF 2051  PRINT 45F, CATGRY, JOLANK, IOLANK				VIPPF	2643
II = 6H Y (F)   JK = 7H   G(F)   SL = 5H R(F)   SM = 10H G   SO - 7HZ - VIPRF   2045				VIPRE	2044
2045  PRINT 790, II, K, L  700 FORMAT(1H-,*VALUES CALCULATED FOR FUNCTIONS: *,7410)  PRINT 461, II, K, L, M  VIPRE 2047  VIPRE 2048  VIPRE 2049  VIPRE 2049  VIPRE 2049  II=2H3A SIF (CATGRY, E0.04A) GO TO 793  VIPRE 2050  II=2H3B SIF (CATGRY, E0.04B) GO TO 793  VIPRE 2051  FRINT 455, CATGRY, INLANK, INLANK  VIPRE 2052			57./HZ.	VIPRE	2045
797 FORMAT(1H-,*VALUES CALCULATED FOR FUNCTIONS: *,7A1C) VIPRF 2047 PRINT 461,II,K,L,M VIPRF 2049  II=2H3A SIF(CATGRY.E0.04A) GO TO 793 VIPRF 2050  II=2H3B SIF(CATGRY.E0.04A) GO TO 793 VIPRF 2051 PRINT 455,CATGRY.JOLANK, JOLANK VIPRF 2052	2045				
PRINT 461,II,K,L,M  VIPRF 2048  VIPRF 2049  II=2H3A SIE (CATGRY.E0.044) GO TO 793  VIPRF 2050  II=2H3B SIE (CATGRY.E0.044) GO TO 793  VIPRF 2051  PRINT 455,CATGRY,INLANK,INLANK  VIPRF 2052			*,7410)		
VIPRF 2049   VIPRF 2050   VIPRF 2050   VIPRF 2050   VIPRF 2051   PRINT 455,CATGEY,JOLANK,IOLANK   VIPRF 2052					
2010 II=2HR8 4IF (CATGRY.E0.C49) GO TO 793 VIPRE 2051 FRINT 45F, CATGRY, INLANK, INLANK VIPRE 2052					
PRINT 455, CATGEY, JOLANK, IOLANK		II=2H3A SIF (CATGRY, EO. C44) GO TO 793			
FRINT 455, CATGEY, IRLANK, IRLANK	20 50	II=2H38 GIF (CATGRY.E0.C49) GO TO 793			
GC 10 795 VIPRF 2053		FRINT 455, CATGEY, IRLANK, IRLANK			
		60 10 795		VIPRE	2053

	PROCRAM VIP	74/74	0PT=1	FTN 4.5+414 01	8/16/77	13.11.28
					VIPRF	2054
	70	PRINT 45F,II	TOLANK TOLA	NV	VIPRE	2055
20 55	19.	. LK101 431-911	, I PLANK , I TEN		VIPRF	2056
21121					VIPRE	2057
	706	I V N A M F ( 1 ) = 1 0	H(P()F())-F	3LYNAME(2)=10H(B)(()RF.1	VIPRE	2058
	f			SLYNAME (4) = 7HH) 7 () )\$	VIPRF	2059
				SILINE1(2)=10HOF THE AIR	VIPRE	2060
20 60				SILINE1(4)=7HPMENT)\$	VIPRE	2061
20.00		ITITL1(1)=2H		3161061(4)-100064(7)	VIPRE	2062
		1111111111-20	3		VIPRE	2063
					VIPRE	2064
	9.0	CALL THORUNA	EDEO DDEL PE	CREL NOTS EMINCE EMAYCE DEMIN DYVALL	VIPRE	2065
20.65	7 C.	CALL INDECENT	FRENS CHELSES	CREL, NPTS, FMINGE, FMAXGE, DBMIN, DYVAL)	VIPRE	2066
SCEE		TE ICATEDY ED	CLA OR CATO	RY.E0.C4B) GO TO 805	VIPRE	2067
		CALL FNDPL(I			VIPRE	2068
	9.0	LYNAME (2) = 10		000	VIPRE	2069
	50			SLYNAMF (4) = 7HH) Z())\$	VIPRE	2070
2077		IF (INCELT.ET			VIPRE	2071
2011		CALL ENTEL (I		10 410	VIPRE	2072
		HEL PRIFERI	-LCII		VIPRE	2073
					VIPRE	2074
					VIPRF	2075
2075	C 4	********	* * * * * * * * * * *		VIPRE	2076
2015	r :		*		VIPRE	2077
		Y(F)	*		VIPRE	2078
		1 1 1	*		VIPRE	2079
	,		*		VIPRE	2080
2080	r :	**********	******		VIPRE	2081
20.0					VIPRE	2082
					VIPRE	2083
		IPLOT=IPLCT+	1		VIPRF	2084
		1. 601-1. 611.	-		VIPRE	2085
20 85		LYNAME (1)=10	H(Y()F())-D		VIPRE	2086
20,				BILINE1(2) = 10 HFUNCTION F \$ILINF1(3) = 4HOR) \$		2087
					VIPRE	2088
		ITITL1(1)=10	H (EQUIPMENT	SITITL1(2) = 10H MOUNTED O	VIPRF	2089
				FITITL1(4) = 10HSTRUCTURE	VIPRE	2090
2000		ITITL1 (F)=10	HTHROUGH IS	SITITL1(6) = 9HOLATORS) \$	VIPRF	2091
				Y (F) DB. \$YSTEP=5.0 \$L=2H1A	VIPRE	2092
					VIPRE	2093
	91	COLL CREFUN	FREQ, DREL, NO	TS, C1AMYC, C1ARLO, C1ARHI, C1AXLO, C1AXHI,	VIPRE	2094
				AHI, FMINGF, FMAXGF, CBMIN, 1, IFIRST, II, K, L,	VIPRF	2095
SLGE		SAHOUTH)			VIPRE	2096
					VIPRE	2097
		IF (INCFLT.NE	. IPLANK) CAL	L ENDPL (IPLCT)	VIPRF	2098
					VIPRF	2099
					VIPRF	2100
2100	•	* ******	* * * * * * * * * * * * * * * * * * * *		VIPRF	2101
	C	*	*		VIPRE	2102
	0	* D(F)	*		VIPRE	2103
	C	•	*		VIPRE	2104
	•	* * * * * * * * * * * * * * * * * * * *	****		VIPRF	2105
2105		IPLOT= !PLCT	1		VIPRE	2106
		IPHAST=1			VIPRE	2107
		FRINT 246 FF	RINT 353, IP	ANE, IFLITE	VIPRF	2108
		II=6H Y (F)	\$ J=84 P (	F) \$K=6H A (F) \$M=10H G SO./H7.	VIPRE	2109
		L=2H38 & IF (	ATERY . En . C4	3) L=243B	VIPRF	2110

	badcoam Albak	74/74 OPT=1	FTN 4.5+414	08/16/77	13.11.28
2110	DRIN	T 79.,II,J,K SPRINT	461.II.J.K.M	VIPRF	2111
		1A FPRINT 455, M, L, CA		VIPRE	2112
				VIPRE	2113
	LYKA	MF(1)=17H(^()F())-D		VIPRE	2114
			SILINE1(2)=10HTHE AIRCRA	VIPRE	2115
2115		F1(3)=104FT FOUIDHT		VIPRE	2116
				VIPRE	2117
	ITITU	L1(1)=10H(EQUIPMENT	SITITL1(2) = 10H MOUNTED T	VIPRE	2118
			TITITL1 (4) = 1 CHLATORS ON	VIPPF	2119
				VIPRF	2120
2125	IF (CA	ATERY. SC. C43) GO TO	820	VIPRE	2121
				VIPRE	2122
	ITITU	L1(E)=10HTSOLATED S	SITITL1(6)=1CHHELF OP RA	VIPRE	2123
		L1(7)=4HCK);		VIPRE	2124
		0 042		VIPRE	2125
2125				VIPRE	2126
	921 1111	L1(5)=10HNON-ISOL.S	SITITLE (5) = 10HHFLF OR RA	VIPPF	2127
		L1(7)=4FCK)*		VIPRE	2128
				VIPRE	2129
				VIPRE	2130
2130	34 CALL	THORUM (FRED. DOEL . DE	CORFL, NPTS, FMINGE, FMAXGE, DRMIN, DYVAL)	VIPRE	2131
		,, ==,,		VIPRE	2132
				VIPRE	2133
	CALL	FNDEL (IPLCT)		VIPRE	2134
				VIPRE	2135
2135				VIPRE	2136
	9F IF (JF	FLITE . SC. ISANCL . OP . T	CCK. FO. 1) GO TO 1000	VIPRE	2137
		TF=JFLITF IICK=1 CCO		VIPRE	2138
				VIPRF	2139
	133° CONTI	INU-		VIPRE	2140
2140		EFROR. EO. 6) 50 TO 89		VIPRE	2141
		LEROP. NE. 3) SC TO 1		VIPRE	2142
		NF(1)=IHOLE(1) TIPLA	NE(2)=IHOLD(2)	VIPRE	2143
	IPLAN	KF(3)=THOLF(3) FJFLI	TE=140LD(4)	VIPRF	2144
	INCPL	LI=IHOLG(5)		VIPRF	2145
2115	GO TO	7 31		VIPRE	2146
				VIPRF	2147
				VIPRF	2148
	dd. CVTT	CCMEPL		VIPRE	2149
				VIPRF	2150
2150				VIPRF	2151
		1 630		VIPRE	2152
	ag. FORMA	AT (1H1, 45X, * A VERASE*	,23X, *AVERAGE*,8X, *SPEED*,9X, *AVERAGE*,	VIPRE	2153
			VERAGE*,7X,*PRESSURE*,7X,*AVERAGE*,	VIPRF	2154
			,*KINEMATIC*,7X,*VISCOSITY*/	VIPRE	2155
21 55			SURE*, 6x, *NOPMALIZED*, 6x, *DENSITY*,	VIPRE	2156
			17*,8X,*VISCOSITY*,7X,*NORMALIZEC*)	VIPRF	2157
		10 I=1,61		VIPRE	2158
			RM=AVOENS(I)/AVDENS(1)	VIPRE	2159
		= VISCCS(I)/VISCOS(1		VIPRF	2160
21 60			I), PNORM, AVDENS(I), DNORM, SOUND(I),	VIPRF	2161
		OS(I), VNORM		VIPRF	2162
	92 FOFMA	11 (F22.3, F13.1, F15.4	,F15.7,F15.4,F15.1,F15.7,F15.4)	VIPRF	2163
	STOP			VIPRF	2164
	E ND			VIPRE	2165

PROCRAM VIPRE 74/74 OPT=1

FTN 4.5+414 C8/16/77 13.11.28

## SYMBOLIC REFERENCE MAP (R=1)

ENTRY PCINTS 6152 VIPRE

VARIAE	IF.	SN	TYPT	RELOCATION	4					
20627	AHFHI	G 11	REAL			20626	AHFLO	RFAL		
27644	AFFMAX		REAL			21067	API	REAL		
21024	AK		REAL			20632	ALFHI	REAL		
20631	ALFLO		REAL			20731	ALNAHI	RFAL		
20730	ALMALO		REAL			20725	ALNEHI	REAL		
20724	ALNALO		PEAL			20732	ALNMAX	RFAL		
21727	ALNYHI		REAL			23726	ALNXLO	REAL		
21066	ALO		REAL			22500	ALPHA	REAL	ARRAY	
224 64	ALT		REAL	ARRAY		24214	ALTTUD	REAL	ARRAY	
20642	AL2FH]		PEAL	RICKET		23541	ALZFLO	REAL	AKKAI	
22472	AMAKNO		REAL	ARRAY		20634	AMFHI	REAL		
20633	AMFLO		PFAL	F. I. K. H.		20643	AMEMAX	REAL		
20630	AFFHI		REAL			24406	AVEENS	FFAL	ARRAY	
24311	AVD		REAL	ARRAY		20611	BBLFHI	REAL	BRIGHT	
20610	BELFLC		REAL			23636	PFZPF	REAL	ARRAY	
20623	RHEHI		REAL			20522	BHFLC	REAL	HILLET	
21€ €	PFI		RTAL			21046	BLFHI	REAL		
21045	PLFLO		REAL			21064	PLO	REAL		
20636	PLZFHI		REAL			20635	BLZFLO	RFAL		
20€17	DMEHT		REAL			20516	RMFLC	REAL		
20777	BEE		REAL			20713	RUFAHI	REAL		
23712	PUFALC		SEAL			20707	BUFBHI	REAL		
20714	PLEDEL		REAL			20711	BUFFZH	REAL		
20710	BUFF7L		REAL			4	BUFMAX	REAL		KARDS
26766	DUEXHI		RFAL			20705	PUFXLO	REAL		
20765	C		REAL			7	CATERY	RFAL		PPLOTT
21030	CLHST		REAL			21737	CORLEM	RFAL		
21CF1	CCRLOF		DEAL			13734	C1A	REAL		
24652	CIANHI		RTAL			20651	CIAALO	REAL		
23610	CILANE		REAL	ARRAY		20550	C1ABHI	REAL		
20647	CIAPLO		BEAL			20653	CIAFN	REAL		
21057	CIAETH		RETL			21 1 56	C1AFZL	REAL		
20654	CIAMAY		REAL			23623	C1AMME	REAL	ARRAY	
210 55	CITMXC		REAL			20546	CIAXFI	REAL		
508 PL	LIVATU		SLUT			13742	CIF	REAL		
13735	USV		SLVF			20562	CSAAHI	REVE		
20FF1	LEVATL		PLUT			20560	CSABFI	REAL		
266 57	USVBFC		SEVE			20663	CZAFN	REAL		
20664	CSAMAX		BLUF			20655		REAL		
206 FF			BLVF			13736	C 5 E	REAL		
20672	CSDAHI		REAL			20671	CSEATO	REDL		
20670	USBOHI		SEAL			20567	CSEBFO	REAL		
20673			BEVE			20674	CSEMAX	RFAL		
SUELE	CSUXHI		REAL			20665	CSEXFO	REAL		
13737	C3A		SEAL	Name and Address of the Control of t		20742	CZAALO	REAL		
24721	CAVVO		PLAL	APRAY		25053	C3AB	REAL	ARRAY	
20740	L3VbnI		SEVE			20743	CSAFN	REAL		
20741	CBAXLO		REAL			24733	CSAXP	REAL	ARRAY	
24767	CATANX		ST AL	ARRAY		13740	C3E	REIL	ACCAM	
25041	CSDV		SE 4 L	ARRAY		25127	C3EAP	RFOL	ARRAY	
24745	CIBB		REAL	ARRAY		24771	C3660	REAL	ARRAY	

	PPOC.	BON Albok	74/74	OPT=1			FTN 4.5	+414	08/16/77	13.11.28
VARIAR	LFS	SK TYPT	3F1	OCATION						
20744	LIBEN	S. Vr			24757	C3EX	REAL	ARRAY		
25003		REAL	ARRAY		25015	CSEAMX	REAL	ARRAY		
24675	UIME	PFAL	APRAV		13743	C4A	RFAL			
17744		BEVE			13741	0.5	REAL			
20712	COMPANY OF THE PARK OF THE PAR	REVE			20701	CSALO	REAL			
20676		SIVE			20675	CSELC	REAL			
	LEEN	DEAL			20704	CEMAX	RFAL			
21311	CEAHL	REAL			29677	CEXTC	REAL			
1 7745		REAL	400 44		21 11 3	U	REAL	ARRAY		
241F0		DEVE	APRAY		21562	DBFL	REAL	PKKAT		
24123		PLVF		KADDC	160	DEMODS	REAL	ARRAY	KARDS	
23746	LEMUL1	REAL	ARRIV	KARNS	22010	DESEL	RFAL	ARRAY	KARUS	
23432		PFAL	ARRAY		23310	DB1A7D	RFAL	ARRAY		
227 64		REAL	AFRAY		23126	DB1F16	REAL	ARRAY		
	DETEL	DEAL	DERAY		23166	DF1111	REAL	ARRAY		
235[3		REAL	ARRAY		23361	DP2A7D	REAL	ARRAY		
22755		REAL	ARRAY		23115	DP2F16	RFAL	ARRAY		
22633	DF2F4	SEVE	ARRAY		23237	DP2111	RFAL	ARRAY		
22514		PIAL	AFRAY		21 334	DECREL	REAL	ARRAY		
17727	DELDOR	REAL			21022	DFLRS	RFAL			
20775	DELTAR	SEVE			20774	DELTAZ	REAL			
21031	DELWE	PLAF			21032	DELWS	REAL			
21750	DE	SEVE			21105	DNCRM	REAL			
13723		SLVE			13721	DWE 100	REAL			
13725		REAL			13715	DXC14	SE 11			
13714		SEVE			11	DXMUC1	REAL		KARDS	
157	DXMOUS	DEVE		KVBLZ	14362	DX1A10	REAL			
1377F		DEVE			13762	DX1F1F	REAL			
137.66		SLVE			13756	DX1F4	REAL			
13772		PFAL			14304	DX2A1C	REAL			
14000	DY2F1E	SEVE			13763	NX2F15	REAL			
13774		DEVE			21100	DYVAL	RFAL			
210 60	FC	PEAL			20752	FCCAT1	REAL			
20753		RENL			7	FCMOVE	RFAL		KARDS	
21017	FCS	SLVF			24174	FLX	REAL	ARRAY		
21075	FLYDE	OFAL			21101	FLX1	REAL			
	E[SEHI	DLVF			21 153	FL2FL0	REIL			
21072	ENTA	SL VF			20502	FMAXGE	REAL			
20601		REAL			20575	FMAXPF	REAL			
20615	ENEHI	OLVE			20514	FMFLC	REBL			
20811		SLVL			20577	FMINHE	SEAL		******	
	EMINEE	GEAL			0	FN'	RFAL	40044	KARCS	
	E CE I HE	SEVE	VESVA		21106	FREO	REAL	ARRAY		
21020	FRO	PE 11	SPRAY		22 2 3 6 21 3 2 3	E ZHEHI	REAL	ARRAY		
24200	F 7	SLVF	SEE GA		21071	F7HI	REAL			
	F74FLC F7LF4T	5.46			21343	FZLFLO	REAL			
216 70	F7LC	SEVE			21 3 3 5	FZMFHI	RFAL			
21074	FIMELO	8-4F			20775	F7PF	REAL			
2	ESM	PEAL		KARES	0	н	REAL		FPLCTT	
24214	HILO	REAL	ARRAY		45	HITE	REAL		PPLOTT	
LF	HITE1	PF AL		PPLOTT	23503	XAMH	REAL			
20745	T	INTEGER			13732	INLUM	INTEGER			
	IA1	INTECER			13752	IA7D	INTEGER			
57	IFLAKA	THITEGER		DSFULL	375	IPUFET	INTEGER		KARDS	

	pone	SOM AIDSE	74/74	OPT=1			FTN 4.5	+414	08/16/77	13.11.28
VARIAE	1 = 5	CN TYPE	251	LOCATION						
20761	ICK	INTLIER	3.0	2004.101	20755	IERRCR	INTEGER			
21077	IFIRST	INTEGER			6	IFLITE	INTEGER		PPLOTT	
20763	TEN	INTEGER			341	IFNISH	INTEGER		KARDS	
13751	IF111	THITEGER			13747	IF15	INTEGER			
137 F C	IF15	INTEGER			13746	IF4	INTEGER			
22555	IFUTO	THITTGER	AFRAY		20757	II	INTEGER			
337	ILAND	INTEGER		KARPS	10	ILINE1	INTEGER	ARRAY	PPLCTT	
324	ILIN72	INTEGER	DEPAY	KARDS	13733	IMAG	INTEGER			
56	INDELL	INTEGER		PPLOTT	55	IPHASE	INTEGER		PPLOTT	
25	ILLTINE	INTECER	AFRAY	FDLOTT	20507	IPLOT	INTEGER			
23T	ISVNUL	INTEGER		KARNS	13730	ISTEEL	INTEGER			
336	ITVKUE	INTEGER		KARDS	13731	ITITAN	INTEGER		******	
17	ITITL1	INTEGER	AFRAY	FPLOTT	340	ITURE	INTEGER		KARDS	
23762	IX	TMTESER			20760	J	INTEGER			
20766	JELITE	INTEGER			21 0 41	LXNAME	INTEGER	ARRAY	PPLCTT	
21,42	T ANJWE	INTEGER	AFRAY	FPLOTT	20755	M	INTEGER	TANNA	PPLCII	
20754	MATERL	THTERER	1 4 21 31 44	FFE(-11	13712	NEF7PF	INTEGER			
13715	NG1A	INTECEP			20737	NC3	INTEGER			
13726	NEUD	INTEGER			13713	NMERS	INTEGER			
10, 20	MAUDET	INTEGER		KARDS	153	NMODES	INTEGER		KARDS	
21073	NETS	THITEGER			20574	NRSVAL	INTEGER			
13722	MWE 1K	INTEGER			13720	NWE100	INTEGER			
17724	NATEK	THTEDER			14001	N1A10	INTEGER			
13775	NIAZO	INTEGER			13771	N1F111	INTEGER			
13761	NIFIE	THITECER			13765	N1F15	INTEGER			
13755	MITE	INTEGER			14003	N2A10	INTEGER			
13777	M2170	INTEGER			13773	N2F111	INTEGER			
137F3	NEF15	INTEGER			13767	N2F16	INTEGER			
13757	NEFL	TNTEGER			21061	PEAK	REAL			
21000	DEM	DEAL			21301	PENDB	REAL			
137 = 1	OI	SLVF			21104	PNCRM	REAL			
29772	050	DE 1			20766	R	REAL			
20773	PFX	DEAL			20767	RIORM	REAL			
3	PC	REAL	ACDAY	<b>PPLOTT</b>	20604	SAHI	REIL			
24621	RSVALS	DEAL	ARRAY		21010	SPHI	REAL			
21007	CTLO	REAL			21014	SBTFD	RFAL			
21011	STELTA	REAL			21315	SFZHI	REAL			
21011	SEZLO	REAL			24210	SIGN	REAL	ARRAY		
245[7	SCHND	DEAL	AFRAY		21016	SPEAK	REAL			
21005	CXHI	REAL			21004	SXLO	RFAL			
20751	Т	PEAL			20722	TAKAHI	RFAL			
20721	TAKALO	REAL			20716	TAKPHI	REAL			
20715	TAVOLO	REAL			20723	TAKMAX	REAL			
23720	TAVXHI	REAL			26717	TAKXLO	REAL			
20734	TEAHT	SEVE			20733	TRPHI	REAL			
20735	TEFC	SEVE			20736	TBREF	REAL	Washington College		
47	TILLER	BEVE		PPLOTT	24170	TWOB	REAL	ARRAY		
21174	THORDE	REAL			23771	11	RFAL			
27764	V	OL TF			23572	VALK	RFAL	ARRAY		
21666	niscue	BLAF	AFRAY		20770	VNCRM	REAL	40044		
Ļ	WE	SEVE		EDF C11	23554	WEK	REAL	ARRAY		
20605	MEMAX	SEAL	ADDAY		24074	WE 100	REAL	ARRAY		
24103	WE1000	REAL	ARRAY	PPLCTT	24112	WF5000	REAL	ARRAY	PPLCTT	
44	WS	BL VE		PPLOTT	5	XBT	REIL		KARDS	
24	XVAIZ	REAL		1-5011	5	V D I	N.C. P.L.		N EISTY C	

	padr	BVM Albak	74/74	CPT=1			FTN 4	· F+414	08/16	/77 13.11	.28
MADIAC	ELES.	SI TYPT	75.	0047701							
	XLAUFF	SEAF	4.F.L	PPLOTT	207/	7 XE					
	XETOMX	PEAL	10014	PPLUII			REIL				
21027		STAL	1 - 4 11 4		2103	3 XHECOR 6 XHELC	RFIL				
	YEEMAY	PETL			2106	The state of the s	FFIL				
13717	XINC1A	PFAL				-	REIL				
SICEC	YLFHI	REAL			2104		RFIL				
1		31.4F		WAD D.C.	21 1 4		REAL				
21052	AFSECE	DEVI		KARLE	2136		REAL				
20637		SEAL			2054		REAL				
1	XMAKNO	R-AL				3 XL2FMX	REAL		KAROS		
27521	a contract Car (S)			PPLCTT		5 XMFCCR	REAL				
	ANEMOX	SEAL			20521		RFAL				
21012	XIL				20506		RFAL				
F4	XX	REAL		KARTS	2110		REAL				
		35 7F		PPLOTT	20525	-	RF1L				
20624		Si 11			2061		REAL				
20612		DTAL			50		REAL		PPLCTT		
F 1	XS	SLVF		PPLOTT	53		REAL		PPLCTT		
57	Χr	DEVE		<b>BSFOLL</b>	L	YAXIS	REAL		PPLCTT		
42	AZIED	SEVE		PPLOTT	21102	YVAL	FFAL				
FILT	AMEC	M ] D =									
	INPUT	FFT	26/14	CUTPUT	EMT	1.1.2.0	CLETLE				
	1		2 1 4 1	COFFOI	- 111	4112	FLFILE			O TAFES	FMT
FXTFPN	MLS	TYPE	ARCC								
	VFUE10	OF 1L	1 170740	Υ		ATAME	REAL	2 LIERAR	V		
	DESALE		1			DETA	32 42	O LICKAR	. 1		
	CUMPES		C			CURVE		4			
	DCHEST		С			FNCPL		1			
	FCF	REAL	1			GPCINTS		17			
	HEICHI		1			LOCFEXA		13			
	MARKTE		1			MIXALF					
	CKEEUN		21			OLIAD		1			
	PEAUCUS		17			PLSET		6			
	RLMESS		4			PLREAL		1			
	TEPLIA		c			TWOFUN		L,			
	X FEBEUT		1 7			YAXANG		6			
	Alvilox		. (			TAXANI		1			
INTING	FUNCTION		TREC								
	VLC	DLIF	1 INTRI	<b>'</b> '		AMOD	REAL	2 INTRI	N		
STATEM	ENT LARFL	5									
6337				16703	2	FMT		7	_		
6445	_			14753		FMT		7141	3		
	7			14757				14665	6	FMT	
6513						FMT		€501	g		
7212				6525	11			7177	12	100,000,000	
14273		FMT			14			14014	15	FMT	
	10	F		0	17			€552	18		
7222	2.5			6414	20			7617	21		
14030	2 5	FMT		6576	23			14360	24	FMT	
7100	2 8	- 1		6417	26			€4€4	27		
				14163		FMT		7631	30		
7227	31			7045	72			14054	33	FMT	
		CHI		7057	35	2112		14072	36	FMT	
14110	40	EMT		14124		FMT		14147	3 9	FMT	
64 25				6455	41			C	42		
6 - 65	4 :			7241	44			72€4	45		

	1	PROGRAM VIPRE	74/74	0PT=1			FTN 4.5+4	14	08/16/	77 13.11.28
STATEM	ENT I	LARFLS								
6430		E Print C		6435	47			6433	48	
6637	50			14415	52	FMT		6664	54	
6710	5 E			6774	58			6676	60	
6746	62			6722	64			6760	66	
€772	68			7004	70			6612	74	
EE 24	7€			7132	78			7320	90	
7340	92			7346	94	FMT		7354	96 210	FMT
7357	100	FMT		15060 15164	205 225	FMT		15246	230	FMT
15156 15255	235	FMT		7463	239	1.41		15333	240	FMT
15353	245	ENT		15735	246	FMT		7510	247	
7524	250			15433	251	FMT		7563	252	
7576	253			15523	254	FMT		15667	255	FMT
7622	256			7723	257			15670	260	FMT
7731	280			3	310			77€0	315	
7765	320			10015	721			10022	322	
19005	323			10027	325			10043	330	
10050	335			10055	340			10063	350	
10101	3F1			15454	352	FMT		15737	353	FMT
1 EC F4	367	CMT		15770	355	FMT		10136	356	FNT
10150	370			10116	375			16161	380	FMT FMT
16154	3 8 2	FMT		15751	787	FMT		16231	385	FMT
10205	387			10321	389 395			10357	398	FFI
10267	363			10 37 3	410			10432	415	
16734	420	EMT		16771	425	FMT		10747	427	
104 60	431			10514	433			10642	435	
16757	436			11027	437			17006	478	FMT
16577	470	FMT		11036	440			17017	441	FMT
10556	442			10574	443			10605	444	
106F7	445			10704	447			10615	448	
10722	449			11516	452			17162	451	FMT
115 12	452			0	453			17234	455	FMT
11606	455			11522	457			17111	458	FMT
113F5	LFO			J	467			17220	461	FMT
114 21	463			ŋ	455			11467	466	
11451	4 6 7			11463	472			11647	473	
11F71	475			11677	480			11716	505	CHT
12044	517			11726	508	CMT		17341	513	FMT FMT
17271	511	FMT		17304	512 518	FMT		12213	520	P FI I
12135	514			11265	580			11320	590	
17411	521	F 3.1		17333	605	FMT		11162	610	
11200	620			11206	625			11235	630	
11251	64:			11000	770			12222	774	
12265	775			3	780			12276	785	
12300	7 97			12711	799			12313	789	
17611	700	FNT		12342	793			12344	795	
12361	800			12372	905			12427	810	
12507	AZE			12513	ALI			12517	860	
12544	SCL			17703	313	FMT		U	910	
17751	920	FMT		12526	1000					
LCOPS	LAD		EBC -TC	LENGTH	PROPERT	-				
6360		* I	775 775	103		EXT REFS				
E4EC	75	I	825 826	70	INSTAC		NOT THEFT			
70€0	100	( * I	944 2139	34510		EXT REFS	NCT INNER			

	P20	- RI	N WIPOF	7	+174	OPT = 1				FTN 4.5+414	08/16/77	13.11.28
LCOFS 7144 7752 11376 11423 11527 12245 12272 12550	LAPEL 17 710 460 460 460 460 460 460 460 460 460 46	*	INDEX II II II II II II II	1250 1772 1779 1839 2012 2022	-TO 982 1233 1776 1792 1841 2013 2023 2160	LENGTH 4.8 6.3 23.3 23.9 3.8 3.8 2.9 2.3 2.3	INSTACK INSTACK INSTACK INSTACK	EXT EXT	XITS REFS REFS	EXITS		
CUMPCK	DEFOLL BEFOLL BEFOLL		LTNGTH 49									
PUFF	ER LEVE	TH			176176 6144	3172						

Slusu	און דער ד	FATCES	74/74	OPT = 1	FTN 4.5+414 08	/16/77	13.11.28
1		SURRO	UTINE RE	ACCOSTZEN,ZLE	MAX, ZF2N, ZL2FMX, ZBUFMX, ZXBT, ZXTL,	VIPRF	2166
		17FCMC	V . NCMCD	. FXM1. DRM1. VC	MOD2, DXM2, CRM2, ITYPCK, ICPAFT, IERROR)	VIPRF	2167
		20.0	,	, , , , , , , , , , , , , , , , , , , ,		VIPRF	2168
		CCMMC	NIKAPES	FR. XLEMAX, FZN	, XL2FMX, BUFMAX, XRT, XTL, FCMOVF,	VIPRE	2169
_					NMODE2, DXMOD2, DBMOD2(100),	VIPRF	2170
					AKOF, ILAND, ITURP, IFNISH	VIPRE	2171
						VIPRF	2172
		FIMEN	STON TO	41(1), DBM2(1),	TDATA(8)	VIPRF	2173
				1111111111		VIPRF	2174
10		TATA	TEL ANK /	1 H /		VIPRF	2175
1		1 - 1 -	5 6 6			VIPRF	2176
		IEBBO	R = 0			VJPRF	2177
		1				VIPRF	2178
	0	*****	*****	* * * * * * * * * *		VIPRE	2179
1=	0	*		*		VIPRE	2180
1	C	DEAC I	NEUT OA	TA CAPA 4		VIPRE	2181
	C	*				VIPRE	2182
	-	******	******	* * * * * * * * * *		VIPRE	2183
			r,20) I			VIPRE	2184
64		2º FORMA				VIPRE	2185
20		3 10414	1 (~ # ; . /			YIPRF	2186
						VIPRE	2187
	•	CHECK	UNCTUS	"END-DE- 108"	CARD WAS READ	VIPRE	2188
		THE CO	AULIUE	-141-171-071	ORKE THE RESIDENCE	VIPRE	2189
0.5		TC (50	F16 \ =0	. 0) GO TO 110		VIPRE	2190
25		11 6-0	1 (5) • 5.1	0 60 11. 110		VIPRE	2191
		COTNI	1.5			VIPRF	2192
		PRINT	7/// 2	OV STUE END-OF	-JOS CARD WAS ENCOUNTERED INSTEAD OF THE		2193
		4 5705	01111-	AX THE FINE OF	-304 CARD HAS ENGOOMERED INSTEAD OF THE	VIPRE	2194
			(1774)			VIPRE	2195
3.0		PRINT	7400V B	DECETIE FACAM	TEDO-COECTAL VALUES CARD. #1	VIPRE	2196
		4 - FURTA	11 (50, )	WHOLITE LUNG A	TERS-SPECIAL VALUES CARD.*)	VIPRE	2197
		75 / 77	WEOK 50	4) CO TO E3		VIPRE	2198
		11 (11	AHOK . E.	.1) GO TO 50		VIPRE	2199
						VIPRE	2200
35		PRINT		000004H EVEOU	CHESTIADES SECTO MOTO	VIPRE	2201
				PRUMENT EXELLO	TION STOPS EEGAUSE*)	VIPRE	2202
		PRINT	47	T. FUT DATA WA	HES ARE NOT STORED IN THE SPOSSAR FOR TH		2203
		67 FORMA	11 (50x,*	INFUL DATA VAL	LUES ARE NOT STORED IN THE PROGRAM FOR THE	VIPRF	2204
		15 506	CIFIEL	TYPE OF MIRCH		VIPRE	2205
40		SiAnte	F = L, ,	15,1-16,111	A-10 AND A-70 AIFCRAFT.*)	VIPRF	2206
			LCHEEL			VIPRE	2207
		STOP				VIPRE	2208
				THE CC		VIPRE	2209
		FI IERPO		INI of		VIPRE	2210
15		ES FORMA	111		TOU DOODESS ASSUMING THAT A DIANK "DOOS		2211
		114-,3	ex, *	PROGREM EXECU	TION PROCEECS ASSUMING THAT A PLANK "PROF	VIPPE	2212
		111	NKAME IS	RS-SOUTIAL VA	LUES" CARD*/29X, *THEN A "FINISH" CARD SHO	VIPRE	2213
		SILE	INVE FOR	COME LI THE WILL	PORAFT PARAMETERS" CARD.*)	VIPRE	2214
				AV-71 FMAV	1-752N CYL 25NY-71 SEMY SOHEMAY-70HEMY	VIPRE	2215
EÜ					N=7F2N SXL2FMX=ZL2FMX \$BUFMAX=ZBUFMX	VIPRE	2216
		X E T = 2	XET 4XT	L=ZXTL SECMOV	TEMP DIEMAN NOT NTI ECHONE	VIPRE	2217
		FRINT	67, FN,	YLFMAX, FZN, YL	ZEMX, BUFMAX, XBT, XTL, FCMOVE		2218
		F7 FORM	T(1H-,2	8X,*PFOFILE	ARAMETERS-SPECIAL VALUES, INPUT DATA VALUE	VIPRE	2219
		15 510	DEED IN	PROGRAM#/294,	MF 1U • 1)	VIPRE	2220
55						VIPRE	
				1	1	VIPRE	2221
		[O 8]	I = 1, NM	OFF1		VIPRE	2222

SIBBOUTING	PFACCES 74/76 CPT=1	FTN 4.5+414 08/16	13.11.28
	81 08M001(I)=0PM1(I)	VIP	PF 2223
		VID	
e c	JEEHFIRST TPRINT RE, J	1,'1MODF1, DYMOD1, (CBMOC1 (I), I=1, NMODF1) VIP	PF 2225
	8" FORMAT (1H1, 28X, 45, # 85	MOING MODE VALUES, INFUT DATA VALUES STORED I VIP	RF 2226
	1N PFOCRAM#/29X,12,13F6	0.2/(29X,13F6.2)) VIP	
		VIP	
	91 JF (F2N.NF.J.) 60 TO 10	VIP	
5.5		41.	
	PRINT SP	VIP	
		RENDING MODE VALUES WILL NOT BE USET IN PRO VIP	RF 2231
	1GRAM CALCILLATTONS# /2CV	(,*3EGAUSE F = G.*/38X,*2N*) VIP	
	RETURN		
7 ٢	6.5.10.6	V I D	
	10" NMCPEZ=NCVCF2 #DYMOD2=	VIP	
		4.1.	
	PO 135 I=1,NMODE2	Alb	
	107 [GMOC2(I)=CBM2(I)	VIP	RF 2238
25		VIP	RF 2239
7 =	J=6HSECONE SPRINT 85,J	,NMODE2, DXMOD2, (DBMOC2(I), I=1, NMCDE2) VIP	RF 2240
		VIP	RF 2241
	RFTURK	VIP	RF 2242
		VIP	RF 2243
		VID	RF 2244
0.6	CHECK MHETHES "EINIGH"	CARD WAS READ VIPE	
		VIP	
	11 IF (ILINE 2(1) . NF . IFNISH	) 50 TO 160	
		VIP	
	PRINT 12°	VIP	
5	12. FORMAT (1H-, 28X, *THE "F	INISH" CARD WAS ENCOUNTERED INSTEAD OF THE F VIPE	RF 2250
	1XPTCTF[*)	VIP	
	FRINT 43	VIP	
	TF(ITYPOK.EC.1) GO TO	VIP	
r			
	ICPROR=1 SPRINT 130	VIP	
	131 FORMATION ATHE DECEM	VIPE	RF 2256
	1ATS COEDS CECAUSE*)	PROCEEDS TO THE MEXT SET, IF ANY, OF INPUT P VIPE	RF 2257
	PRINT 47 SRETURN	VIP	
5	PRIOR UT RETURE	VIPA	
*	143 DOINT 46 200 TO 65	VIPE	
	141 PRINT 60 130 TO 65	VIPE	RF 2261
		VIPE	RF 2262
		VIPA	RF 2263
	CHECK MHELHED "DESUBIO	TION" CARD WAS READ VIPE	RF 2264
C		VIPE	2265
	16' I=ILINF2(4) *IF(I.NE.I	SANDL . AND . I . NE . IBUFET . AND . I . NE . ITAKCF . AND . VIPE	RF 2266
	11. NE. ILAND. AND. I. P. IT	VIPR 00 TO 203	RF 2267
		VIDE	
	PRINT 183	VIPR	2F 2269
5	18 FORMAT (1H-, 284, *THE CA	ED SHOWN BELOW APPARENTLY IS A "CESCRIPTION" VIPE	RF 2270
	1 CARO*/29x, *WHICH WAS	ENCOUNTERED INSTEAD OF THE EXPECTED*) VIPE	
	PRINT 47	VIPR	
	PRINT 185, ILINE2	VIPR	
	18" FORMAT (1HC, 28X, 8A10)	VIPR	
		VIPR	
3	IF (ITYECK. EC. 1) GO TO	210 VIPR	
Ĵ		VIPR	6610
3			
3	IFROR=2	VIPR VIPR	2277

	SUBROUTINE	READ	cns 7	4/74	0PT=1	FTN 4.5+414 0	8/16/77	13.11.28
115	5	191	FORMAT	1H28	x.*IT TS	ASSUMED THAT THIS APPARENT "DESCRIPTION" CAR	VIPPE	2280
			10*/29X.	* EFL CN	GS TO TH	E NEXT SET, IF ANY, OF INPUT DATA CARDS. */	VIPRE	2281
			229X, * AN	D THE	PROGRAM	PROCEEDS TO THIS SET.*)	VIPRE	2282
			FFTURN				VIPRE	2283
							VIPRE	2284
120	0	211	TERROR=	3 PRI	NT 60 3P	RINT 200	VIPRE	2285
		201	FORMAT	20Y, #I	T ALSO I	S ASSUMED THAT THIS APPARENT "DESCRIPTION" CA	VIPRE	2286
			1RD#/254	*F=LO	NOS TO T	HE NEXT SET, IF ANY, OF INPUT DATA CARDS.*)	VIPRE	2287
			GO TO S				VIPRE	2288
							VIPRE	2289
125	5						VIPRE	2290
		C	CHECK V	ALUT I	N CAFD C	OLUMNS 75-80	VIPRE	2291
							VIPRE	2292
		203	ENCODE	10,205	,I) ILIN	E2(8)	VIPRE	2293
			FORMAT (				VIPRE	2294
130	0		CECODE (	10,207	,I) YFC	OV	VIPRE	2295
		563	FORMAT (	F6.21			VIPRF	2296
			IF (YECH	0V.55.	(.) CO T	0 220	VIPRE	2297
							VIPRF	2298
							VIPRE	2299
13	F	C	CARD IS	ASSUM	ED TO BE	CARD 1 OF THE SET OF 1ST BENDING MODE VAL. C	VIPRE	2300
							VIPRE	2301
			DEINT S				VIPRF	2302
						ARD SHOWN BELOW APPARENTLY IS CARD 1 OF THE S		2303
						NE MODE VALUE CARDS INSTEAD OF THE EXPECTED*)	VIPRF	2304
140	0		PRINT 4	3 4bbI	NT 185,I	LINE2	VIPRE	2305
							VIPRF	2306
			IF (ITYP	UK.EC.	1) GO TO	21 3	VIPRE	2307
					2000		VIPRE	2308
			PRINT 4				VIPRF	2309
1 40	5		CALL DO	NEPL S	STOP		VIPRE	2310
							VIPRE	2311
			FRINT 2				VIPRE	2312
						AF EXECUTION PROCEEDS ASSUMING THAT A BLANK "		2313
						ECTAL MALUES" CARC*/29X,*SHOULD HAVE PRECEFUS		2314
150	0		SU THIS	CARC.	)		VIPRE	2315
							VIPRF	2316
						\$F2N=ZF2N \$XL2FMX=ZL2FMX \$BUFMAX=ZBUFMX	VIPRE	2317
			Y H I = \ A F	I axil:	= XXIL 3F	OMOVE= 7FOMOV	VIPRE	2318
4.55			DOTHE :		V	AL VIARRY DURMAY VOT NT. CONOUR	VIPRF	2319
155			PRINT 3	bl of No	X L F M D X , F	2N, XL2FMX, BUFMAX, XBT, XTL, FCMOVE	VIPRE	2320
			NCADES-	4 64 40		CT CTHORON-4	VIPRF	2321
					FESHEIP	ST *IMODCK=1	VIPRF	2322
			GO TO 5	11			VIPRE	2323
160							VIPRF	2324
161		C	CARD TS	ACCIIMI	ED TO DE	THE "PROFILE PARAMETERS-SPECIAL VALUES" CARD	VIPRE	2325
		.,	CARD IS	423000	-1 1 of	THE PROFILE PARAMETERS - SPECIAL VALUES CARD		2327
		22"	IF (ITYF	CK. 50	1) CO TO	2311	VIPRE	2328
		22	T. (T.14)	C	1, 90 (1)	200	VIPRE	2329
165	5		LECODE (	80.225	TI THE 21	EN. YI EMAY, FON. YI SEMY BUENAY, VOT. VTI . FEMOLE	VIPRE	2330
7 ( ;		225	FORMAT	8F11.7	1 21	FN, XLFM1X, F2N, XL2FMX, RUFMAX, XBT, XTL, FCMOVE	VIPRE	2331
		560	PRINT 2				VIPRE	2331
		227				IE DADAMETEDS-SECTAL VALUES CADE*/200 84403	VIPRE	2333
		56	GO TO 2		, - KUF1	LE PARAMETERS-SPECIAL VALUES CARC*/29X,8A10)		
170	n		611 10 2	5.0			VIPRE	2334
Ti		27-	EN-7EN	THENA	Y-71 EMAV	SF2N=ZF2N \$XL2FMX=7L2FMX \$BUFMAX=ZBUFMX	VIPRE	2336
		- 3 -	LW-TLW	- VELLEY.	N-ZLFMAX	TOTAL TIEN DALCEMA- (LEPTA DOUPMAX= ZBUPMX	ATEKE	2330

SIBPOUTIN	E BENUCCE	74/74	077=1	FTN 4.5+414	08/16/77	13.11.28
	Y 0 T =	TYPT TYTE	L=ZXTL SECMOVE	7FGMQV	VIPRE	2337
	10 10 11				VIPRF	2338
	J=1H				VIPRE	2339
450	0-1-				VIPRE	2340
175	no a	40 I=1,8			VIPRE	2341
			. NF . 11 GO TO 2	0	VIPRE	2342
	Z4° CCNT		· 11 - 6 - 11 - G11 - 1 - 2	U .	VIPRE	2343
	24 1 CN1	ILC.			VIPRF	2344
1.00					VIPRE	2345
1 80	DOTA	T 000 CN	VIEHAV ESA VI	THE DIEMAN VOT VTI ECHONE	VIPRE	2346
	PP [N	1 76195	, XLF MPX, FZN, XL	PEMX, BUEMAX, XRT, XTL, FCMOVE		2347
	51. FO 24	ATTIFL, 2	D THE DESCRAPAN	AMETERS-SPECIAL VALUES CARD, INPUT DATA	VIPRE	2348
			II IN PRIII PAMIA	BLANK CARE WAS READ) */	VIPRE	2349
		8F10.11				
1 45	60 T	0 298			VIPRF	2350
					VIPRF	2351
					VIPRE	2352
	33. LEUO	DE ( & ( * 55)	E , ILINES YEU,	'LEMAX, YEZN, YLZEMX, YBUEMX, YXBT, YXTL,	VIPRE	2353
	1YFCM	CV			VIPRE	2354
100					VIPRE	2355
	J= ºH	*			WIPRE	2356
	00 3	77 I=1, 9			VIPRE	2357
	277 IDAT	A (I) = 14			VIPRE	2358
					Alber	2359
105	IF (Y	FN.FC.C.	) CO TO 280		VIPRE	5360
	F N = Y	FA SIDAT	A(1) = J		VIPRE	2361
	PRI IF (Y	LEMAX.FO	.J.) CO TO 282		VIPRE	2362
	XLEM	AX=YLENA	X FIDATA(2)=J		VIPRE	2363
			.) SO TO 284		VIPRE	2364
200		AESH TIC			VIDRE	2365
24.0			. J.) (0 TO 286		VIPRE	2366
			X 910ATA(4)=J		VIPRE	2367
			.0.) GO TO 288		VIPRE	2368
			L=(F)ATANIE X		VIPRE	2369
262			.) GO TO 290		VIPRE	2370
7.0		AND TIL			VIPRE	2371
			.) GO TO 393		VIPRE	2372
		YXIL SIF			VIPRE	2373
			) GO TO 294		VIPRE	2374
210			y SIDATA(8)=J		VIPRE	2375
210	. 0 (	V 1	2 21 - K ( K ) 37 - 32		VIPRF	2376
	201 POIN	T 206 EN	YIEMAY . EZA . YI	FMX, RUFMAX, XRT, XTL, FCMOVE, ICATA	VIPRE	2377
	306 EC3M	INT / 1 H = . 2	AY ADDOCTIE DA	RAMETERS-SPECIAL VALUES CARD, INPUT DATA		2378
	4 1/ 0 1 1	EC DEAF	EDOM CARC OR S	TORED IN PROGRAM*/ 29X,8F10.1/29X,8A10.	/ VIPRF	2379
0.15				EAD FROM CARD )	VIPRE	2380
215	2631	32FT 1VI.	TORIES VALUE 4	AD FROM CARD	VIPRE	2381
					VIPRE	2382
	200 1010	TC-4 ***	OCC-CUCTOCT AT	40DCK=4	VIPRE	2383
	3.04 W.C. B.S.	DS=1 : Km	OCE=EHEIDS1 &I	1000,K-1	VIPRE	2384
0.00					VIPRF	2385
250		****	********		VIPRE	2386
			* * * * * * * * * *		VIPRE	2387
	,	- * * * * * * * * * * * * * * * * * * *			VIPRE	2388
			FC IN SFT		VIPRE	2389
		MEINE AC	DE VALUE CARTS		VIPRE	2390
2.85	r •					
	. *****		* * * * * * * * *		VIPRE	2391
					VICRE	2302
	39. BE 11	(F, 2L) I	LINES		VIPRE	2393

SIDE	PEATERS	74/74 CPT=1		FTN 4.5+414	08/16/77	13.11.28
					VIPRE	2394
230					VIPRE	2395
	C CHECK	WHETHER "END-OF	-JOS" CARD WAS READ		VIPRF	2396
					VIPRF	2397
	IF (EC	F(5). Er ) 50 TO	431		VIPRE	2398
					VIPRE	2399
235	IECOC	P=4 TORINT 40			VIPRE	2400
		CCCK. 20.2) SO TO	75.0		VIPRE	2401
		,			VIPRE	2402
	PRINT	710, NCAPOS, NHOD	F		VIPRE	2403
	317 F03MA	T (2 CX. *CARD * . T1	.* OF THE SET OF "*, A6,	* BENDING MORE VALUE		2404
240	1 1 1 1 1 1	*,2013)	, , , , , , ,	, 52.1.2.1.0.1.002.7720	VIPRF	2405
		,			VIPRF	2406
	TECTT	YECK. EG. 1) 50 TO	720		VIPRE	2407
					VIPRE	2408
	PRINT	45 PRINT 47			VIPRE	2409
245		DENF PL SSTOP			VIPRE	2410
					VIPRE	2411
	321 T=10H	CR THE FIN SUERH	ISH CARD PRINT 330, I,	1	VIPRE	2412
	331 FORMA	T(29x, 9A10)			VIPRE	2413
		341 PRINT 43			VIPRF	2414
200			AN EXECUTION PROCEEDS A	ASSUMING THAT THE "F		2415
	15H" C	ARD FOLLOWED THE	*/29X.8A10)		VIPRF	2416
	CC TO	71			VIPRE	2417
					VIPRE	2418
					VIPRE	2419
2 . =	75: IF(F2	N.NE. 1.) 60 TO 3	8.2		VIPRE	2420
					VIPRE	2421
	I = 10 H	FINISH CAR FJ=1H	D \$PRINT 330,1,J		VIPRF	2422
	PRINT				VIPRE	2423
			XECUTION PROCEEDS ASSUM	MING THAT THE "FINIS		2424
260		SHOULD HAVE FOLL			VIPRF	2425
	FRIMT				VIPRE	2426
	37 FORMA	T (29x, *THE DEECE	ECING SET OF BENDING MO	DDE VALUE CARDS. *)	VIPPF	2427
	PRINT				VIPRE	2428
	RETUR	N.			VIPRE	2429
2 5 5					VIPRF	2430
	78º IF(IT	YERK. EQ. 1) SO TO	331		VIPRE	2431
					VIPRF	2432
	FRINT	4F SERINT 47			VIPRE	2433
	CVET	CUEFL STOP			VIPRE	2434
270					VIPRE	2435
	390 I=10H	CK THE EIV ET=8H.	ISH CARD SPRINT 310, NCA	ARCS, NMODE, I, J	VIPRE	2436
	PRINT	360 TPRINT 370			VIPRF	2437
	SO TO	cl			VIPRF	2438
					VIPRE	2439
275					VIPRF	2440
	CHECK	MHETHER "FINISH	" CARD WAS READ		VIPRE	2441
					VIPRF	2442
	43. IF(IL	INF 2(1) . NF . IFNIS	H) GO TO 453		VIPRE	2443
					VIPRF	2444
266	TECIM	CLUK.EC.S) BU IU	44?		VIPRE	2445
					VIPRF	2446
	IF(IT	YECK.En. 1) GO TO	70		VIPRE	2447
					VIPRF	2448
	I-SBO	The same of the sa			VIPRF	2449
2 8 5	PPINT	120 PRINT 310,	NCARDS, NYONE		VIPRE	2450

51	LORONTINE PERMICS 74/74 OPT=1 FIN 4.5+414	08/16/77	13.11.28
	PRINT 47 PERINT 435	VIPRE	2451
	430 FORMAT (29X,*THO PROGRAM PROCEEDS TO THE NEXT SET, IF ANY, OF DATA C		2452
	1805.4)	VIPRF	2453
	RETURN	AIBEL	2454
500		VIPRE	2455
		VIPRF	2456
	44) IF(ITYECK.EC.1) SO TO 3)	VIDRE	2457
		VIPRE	2458
	IF(F20.E0.3.) RETURN	VIPRE	2459
SCE		VIPRE	2460
	IFPROP=1	VIPRE	2461
	TRINI 120 PPINI 310, NCARDS, NMODE	VIPRE	2462
	PRINT 47 SPRINT 475	VIPRF	2463
200	beight		2465
360		VIPRF	2466
	CHICAL LUCTUED HOECODIDITIONS CADD HAS DEAD	VIPRF	2467
	CHICK WHETHER "CESCRIPTION" GARD WAS READ	VIPRE	2468
	ACT THE TARGET AND THE TOUGHT AND THE TRACE AND	VIPRE	2469
7.1	45: I=ILINF2(4) SIF(I.NL.ISAND.I.NF.IPUFET.AND.I.NE.ITAKOF.AND.	VIORE	2470
365	11. NF. ILAND. AND. I. NF. ITURA) GO TO 540	VIPRE	2471
	FRINT 1°C	VIPRE	2472
	ENTAL THE	VIPRE	2473
	IF (IMCDOK, EC. 2) GO TO 470	VIPRE	2474
710	17 11 11 11 11 11 11 11 11 11 11 11 11 1	VIPRE	2475
	IF(ITYFOK.EG. 1) GO TO 469	VIPRE	2476
		VIPRE	2477
	IERROR = 2 FRRINT 310, NCAROS, NMODE	VIPRE	2478
	CRINT 185, ILINE? SPRINT 47 SPRINT 196	VIPRE	2479
340	PETUPA	VIPRE	2480
		VIPRE	2481
	46: IEFRCH=3	VIPRE	2482
	I=10HCP THE FIN *J=8HISH CARD SPRINT 310, NCAROS, NMODE, I, J	VIPRF	2483
	FRINT 185, TLINES SPRINT 340 SPRINT 43 SPRINT 200	VIPRF	2484
320	GO TO 70	VIPRE	2485
		VIPRF	2486
		VIPRF	2487
	470 JEGROF=7 TIF(ITYPOK.EG.1) SO TO 500	VIPRF	2488
		VIPRF	2489
725	IF(F2N.NE.D.) GO TO 490	VIPRF	2490
		VIPRE	2491
	I=10HFIMISH CAR [J=1HD SPRINT 330,I,J	VIPRE	2492
	PRINT 365 SPRINT 372	VIPRF	2493
	BRINI 65 43BINI 300	VIPRE	2494
777	RETURN	VIPRE	2495
		VIPRF	2496
	490 IERRCR=?	VIPRE	2497
	FRINT 310, NCARDS, NMODE	Albet	2498
	PRINT 185, ILINES SPRINT 47 SPRINT 495	VIPRF	2499
375	40F FORMATIZES, ** PROGRAM EXECUTION PROCEFES ASSUMING THAT THIS APPAREN		2501
	1 "DESCRIPTION" CAPD*/29X,*3ELONGS TO THE NEXT SET, IF ANY, OF INPUT		2532
	S LOTA CAPLE.*)	VIPRF	2503
	RF TUP.	VIPRE	2504
710	TO I=10MOR THE FIR TU=8HISH CAPD PRINT 310, NCARDS, NMGDE, I, J	VIPRE	2504
310	FRINT 187, ILINES SPRINT 360 SPRINT 370 SPRINT 200	VIPRE	2506
	GO TO SC	VIPRE	2507
	50 10 10		

	SUPROUTINE READ	CDS 74/74	CPT=1	FTN 4.5+414	08/16/77	13.11.28
					VIPRE	2508
					VIPRE	2509
34	5 54,	DO 543 I=1.8			VIPRE	2510
			NE. IPLANK) GO TO	570	VIPRE	2511
	363	CONTINUE	W. T. Early 10 111		VIPRE	2512
	277	. 0.111.0			VIPRE	2513
					VIPRE	2514
35		A PLANK CARD	WAS PEAD		VIPRE	2515
			TO KERS		VIPRE	2516
		IF (ITYPOK.EC.	1) GO TO 553		VIPRE	2517
		1 (11)	1, 00 10 37		VIPRE	2518
		IF (IMCCCK.SO.	2) GO TO FA7		VIPRE	2519
35	3	11 (11 (55)	2, 00 10 34.		VIPRE	2520
0 -		PRINT 545			VIPRE	2521
	543		Y . A DI VNK CVDU A	AS READ INSTEAD OF THE EXPECTEC*)	VIPRE	2522
	7-3		RDS, NHODE SPRINT		VIDRE	2523
		CALL CONERL 4		45 BERINI 47	VIPRE	2524
36	n				VIPRE	2525
		IF (FZN.NE.O.)	GO TO 550		VIPRE	2526
		21 11 2 11 2 11 2 1 2 1 1			VIPRE	2527
		PRINT C2			VIPRE	2528
		RETURN			VIPRE	2529
361	F	1010			VIPRE	2530
		PRINT 545			VIPRE	2531
	.,,,		DAD HATHREL & AT	PRINT 310, NCARDS, NMODE, I, J	VIPRE	2532
		PRINT 45 PORT		11111 310 110 110 110 110 110 110 110 11	VIPRE	2533
		CALL CONCEL &			VIPRE	2534
77	r				VIPRE	2535
					VIPRE	2536
	557	IFTIMCCCK.FC.	2) GC TO 557		VIPRE	2537
		1. 11. 000	2, 30, 1, 22,		VIPRE	2538
		MACOF 1 = NCMCC1	SDXMOD1=FXM1		VIPRE	2539
77	7	DO 555 I=1. NH			VIPRE	2540
		CBMOD1 (I) = DBM			VIPRE	2541
		00 001117-0	1117		VIPRE	2542
		JERHETRST tER	TAT PE.J.NMODE1.D	XMOD1, (FBMOD1(I), I=1, NMODF1)	VIPRE	2543
		GO TO 513	1 , ,,,, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		VIPRE	2544
38	r				VIPRE	2545
		IF (F2N. NE)	GO TO 563		VIPRE	2546
					VIPRE	2547
		FRINT 92			VIPRE	2548
		PETURN			VIPRE	2549
7 0	F				VIPRE	2550
	563	FMODES = NCMCDS	*DXMCD2=DX42		VIPRE	2551
		00 56F I=1,NM			VIPRF	2552
	5.5	DBMODS(I)=DBM			VIPRE	2553
					VIPRF	2554
7 0	•	J=6HSECOND SE	RINT 85.1. UMODE2.	DXMOD2, (DBMOC2(I), I=1, NMCDE2)	VIPRE	2555
		60 TO 820			VIPRE	2556
					VIPRE	2557
					VIPRE	2558
	C	CARD IS ASSUM	EN TO 3E CARD 1 0	THE SET OF 1ST BENDING MODE VALUE		2559
70				THE PARTY OF THE P	VIPRE	2560
	57	IF (IMCCCX. EC.	2) 30 10 575		VIPRE	2561
					VIPRF	2562
		FECODE (8) .585	, ILINE ?) N'10051,0	(MOD1, (DBMOD1(I), I=1,12)	VIPRE	2563
		NVALS=NMCCF1			VIPRE	2564

	SIBROUTING	BEDUCES	74174	0PT=1	FTN 4.5+414	08/16/77	13.11.28
40	r					VIPRE	2565
	C.	E 75 51 300	100 500	TI THE 21 MAGE	DE2 DYMOD2 (DDMOD2(I) I-4 42)		2566
					DE2, DXMOD2, (DRMOD2(I), I=1,12)	VIPRF	
		587 FORMAT		6 • 61		VIPRF	2567
		LAUF2=	- VWCCES			VIPRE	2568
	-	FOR PRINT		DE TUTNES		VIPRF	2569
4	5	Sar ESINI				VIPRF	2570
					IG MODE VALUE CARDS*/29X,8A10)	VIPRE	2571
		IF ( V. V )	LS.L: .1	S) 40 TO 803		VIPRE	2572
						VIPRE	2573
				= u & i E (K * F L * V	IVALS) GO TO 620	VIPRF	2574
41	0	K=KNVI	c 4 L = 1			VIPRF	2575
						VIPRF	2576
						VIPRE	2577
	~	* * * * * * * * * * * * * * * * * * * *	* 4 4 4 4 4 4 4 4	* * * * * * * * * *		VIPRE	2578
	C	*		*		VIPRE	2579
41	5	REAF 21	E ANE SI	LOCEFUING		VIPRF	2580
	^	BENLING	MCPE V	THE LABOR		VIPRE	2581
	_			*		VIPRE	2582
	C.	*****	*****	* * * * * * * * * *		VIPRE	2583
						VIPRE	2584
62	n	SE NEARIS	=NCARDS	+ 1		VIPRE	2585
			,20) IL			VIPRE	2586
			12.7.12.			VIPRE	2587
						VIPRE	2588
	C	CHECK	MULTUED	"ENC-05- 100"	CARD WAS READ	VIPRE	2589
42		CHILA	M DE 1 DE P		WARD WAS READ	VIPRE	2590
46		751505	- / - > 0				2591
		11 17 101	(-)	3) GO TO 553		VIPRE	
						VIPRE	2592
				NT 310, NG BROS		VIPRE	2593
7.7	9			NT 53L, NVALS,		VIPRF	2504
43	0	BAL ECOMA	(3cx,*V	rr ue ine + 'I	3,* *,A6,* BENDING MODE VALUES COULD NO		2595
				INPUT DATA C	CARDS.*)	VIPRE	2596
		LALL	CKEBL T	SIDE		VIPRE	2597
						VIPRE	2598
						VIPRE	2599
47	5	CHICK	MHETHER	"FINISH" CAR	D WAS READ	VIPRE	5600
						VIPRF	2601
		65" IF (IL)	( 1) S 3 A	NF. IFNICH) GO	TO 670	VIPRF	2602
						VIPRF	2603
		ILBSOR	= 1			VIPRE	2604
41	^	DRINT	12 : PR:	INT 313, NOARD	IS,NMODE	VIPRE	2605
		FRINT	13" 100	INT F30, NVALS	S,NMODE	VIPRE	2606
		FFTIIR				VIDRE	2607
						VIPRE	2608
						VIPRE	2609
44	5	CHECK	WHETHER	"DESCRIPTION	" CARD WAS READ	VIPRE	2610
						VIPRE	2611
		67 T=T1 Th	= 2 (6) =	TELT NE TSAND	L.AND.I.NF. IRUFET. AND. I. NE. ITAKOF. AND.	VIPRE	2612
				.I. "E. ITURR)		VIPRE	2613
		1.1.		•1• . •1 0 . /	75 17 750	VIDEE	2614
45	n	ITEROF	= 2			VIPRE	2615
4 :				INT TID, NOARD	IS NAUDE	VIPRE	2616
						VIPRE	2617
				NF2 IPRINT 19	1.1		
		EL TIIS				VIPRE	2618
	r	. 0 . 50 7	T-4 0			VIPRF	2619
45		593 00 730			TO 7.0	VIPRF	2620
		I F T L L	v ⊢ ⊆(I)•,	ME. IDLANK) GO	111 740	VIPRE	2621

	SUPPOUTINE PEARCES 7	4/74 CPT=1	FTN 4.5+414	08/16/77	13.11.28
				VIPRE	2622
	361 CONTIN	75			2623
				VIPRF	2624
				VIPRF	2625
4 50	C A FLANK	CARD WAS PEAD		VIFRF	2626
		to and			2627
	PRINT 7	1 7	THE SHARINGTERS THEFTER OF THE EVE	VIPRE	2628
		14-,284, A BLANK GARD	WAS ENCOUNTERED INSTEAD OF THE EXP	VIPRE	2629
	1E D*)				2630
4 FE		11, NCARES, NMODE	0.5	VIPRF	2631
		F FRINT 630 , NVALS, NMC	"JE		2632
	CALL DO	MEEL ISTOP		VIPRF	2633
				VIPRE	2674
	re received		WALLE 0400	VIPRE	2635
470	C CVSU 13	ASSUMER TO BE A MODE	VALUE CARD	VIPRE	2636
			T. THES. (DOMODA (T) T-1 (V)	VIPRE	2637
	4: IF (IMC	GK. EG. 1) DEPONE (80,760	,ILINE2) (DBMOD1(I),I=J,K)	VIPRE	2638
			,ILINE2) (DRMOD2(I),I=J,K)	VIPRE	2639
	76' FORMAT	1355.2)		VIPRE	2640
475		0.0 11 11 52		VIPRE	2641
	78: FORMAT	PRI, ILINE 2		VIPRE	2642
	75. FOREST	Z TY, FAIC		VIPPF	2643
	TE (1 5 C	(.1) GO TO POS		VIPRF	2644
4 80		30 17 (65		VIPRF	2645
41		EK=K+13 FIF (K.LT. NVALS	S) 60 TO 620	VIPRF	2646
	K=NVALS			VIPRF	2647
	GO TO F			VIPRF	2648
				VIPPF	2649
4 0	5			VIPRF	2650
		CK.EQ. 2) SO TO 820		VIPRF	2651
		2 SNCARES=1 SNMODE=6HS	SECOND	VIPRE	2652
	co to a	: O C		VIPRF	2653
				VIPRE	2654
40				VIPRE	2655
	□ 市市市市市市市市	* * * * * * * * * * * * * * * * * * * *		VIPRF	2656
	•	*		VIPRE	2657
	C FEAC LAS	T LOUID		VIPRE	2658
	r IN SET (	F DATA CARES		VIPRE	2659
40		*		VIPRE	2660
	L *******	*******		VIPRE	2661
				VIPRF VIPRF	2662
	821 PEAD (5,	51) ILINES		VIPRE	2664
				VIPRE	2665
500			ADD HAS SEAD	VIPRE	2666
	C CHECK	HETHER "END-CE-JO"" C	THE WAS REAL	VIPRE	2667
	75.4505	(=) 50 0) CO TO 963		VIPRE	2668
	TE GOE	(5).50.0) SO TO 853		VIPRE	2669
E ^1	IESECE:	- L		VIPRE	2670
	PRINT	A STETCHEINISH CAR SJ	=1HD \$PRINT 330, I, J \$PRINT 840	VIPRE	2671
	84 FORMAT	(29x. *PROGEAM EXECUTION	STOPS AFTER THE SURRENT SET OF I	NPUT VIPRE	2672
		ARTS.*)		VIPRF	2673
	ASULLA			VIPRE	2674
F 1				VIPRE	2675
				VIPRF	2676
	C CHECK I	WHETHER "FILISH" CARD	MAS READ	VIPRE	2677
				VIPRF	2 <b>67</b> 8

0	fusuntive sevects	74/71 00	7 = 1	FTN 4.5+414	08/16/77	13.11.28
	BET IF (II	LINE 2(1).N!.	IFNISH) SO TO 870		VIPRE	2679
FIE					VIPRE	ZERD
	DOIN.	T 185, ILINES			VIPRE	26 9 1
	FETU	C K			VIPPF	2832
					VIPRE	2883
					VIPRE	2684
E 20	C CHECK	K MHETHED ")	ESCRIPTION" CARD W	AS READ	VIPRF	2685
					VIPRE	2886
	97 I = IL:	IN-2(4) 3IF(	I.NE.ISANDL.AND.I.	VF. IBUFET. AND. I.NE. ITAKOF. AND.	VIPRE	2687
	11. NL.	. TLANT . AMP . I	וא חד מם (מצטדו. זיי.	8.0	VIPRE	2688
					VIPRE	2689
FOF	Iz3b(	)F= 7			VIPRF	2660
	ESIN.	T 18: : I=1 H	FINISH CAR SU= 1HD	PRINT 330, I, J	VIPRF	2691
	LEIN.	185,TLINE2	SPRINT 495		VIPRE	2692
	RETHE	10			VIPRE	2693
					VIPRE	2694
E 30					VIPRE	2695
	C V CV	SL MILH NAKA	IDWN CONTENTS HAS RE	VL	VIPRE	2695
					VIPRE	2697
	dw. It ab	F = 4			VIPRE	2698
	PPINI	L co. ILINES			VIPRE	2699
E 7 E	ac: EOSMI	1T(1H-,28X,*	THSTEAD OF THE EXPE	TTED "FINISH" CART, THE CARD SHO	VIPRE	2700
	1 4 1 5	FUH MYS EXU	DUNTERED AFTER THE	*/29X, *LAST CAPD IN THE SET OF	VIPRE	2701
	52.00	ONE SENDINE	MOLE AVEILE. LABOR.	1/29X, *PROGRAM EXECUTION STOPS A	VIPRE	2702
	3FTED	PLIPLI AND	STOLE VSE BEUDACED	FOR THE CUPRENT SET OF INPUT DA	VIPRE	2703
	ATA CO	TEDC . # //29X,	8A1J)		VIDRE	2704
510	EL I Na	51.			VIPRE	2705
	LND				VIPRE	2706

SAMBUTIC SEEDENUE NYE (BEI)

EVILLA ECTMIS

VAPIAE	FEE	CH TYP	5 €	LOCATION					
L	DIEMIX	DFAL		KAPPS	12	DPMOC1	REAL	ARRAY	KARDS
100	Dancos	DEAL	AHPAY	KVSLIC	3	DPM1	RFAL	ARRAY	F.P.
0	DEMO	SEVE	ARDAY	F.F.	11	FXMOC1	REAL		KARDS
157	DXM002	BLVF		KAPES	a	DXM1	REAL		F.P.
ε	DXMS	DEJE		F.D.	7	FCMOVE	REAL		KARDS
C	FN	RFAL		KISLE	2	F2N'	REAL		KARES
30 45	I	INTEGER			1200	IPLANK	INTEGER		
775	I BUF T	THITTOFF		KAPPS	0	ICRAFT	INTEGER	*UNUSEC	F.P.
BLEE	IDATA	INTERED	ABEAV		0	IFFROR	INTEGER		F.F.
341	IEMISH	INTERER		KUSUS	337	ILAND	INTEGER		KARNS
324	ILTNES	THITTGER	VY S SIV	KAPES	3752	IMCCCK	INTEGER		
774	ICTITLE	INTECED		KARDS	336	ITAKCE	INTEGER		KARDS
340	TTIPO	THITEGER		KASLS	3	ITYPCK	INTEGER		F.P.
3666	3	INTECER			3163	K	INTEGER		
36 64	L	INTEGER			3050	NEARIS	INTEGER		
30 F 1	HINDLIF	INTICLE			10	MMODE1	INTEGER		KARDS
156	VMUDUS	INTECER		KUSUS	J	NOMOC1	INTEGER		F.F.
2	VCMCLS	INTERER		F.F.	3062	MVALS	INTEGER		

	SURPOU	TINE READERS	74/74	OPT=1				FTN 4	.5+414		08/1	6/77	13.11.28
VARIA	FLES	SN TYPE	31	LOCATION									
5	XPT	REAL		KARDS		1	XLFMAX	REAL			KARDS		
3	XL2FMX	REAL		KARDS		6	XTL	REAL					
	YEUFMX	REAL		KAKIIS		3047	YFCMOV	REAL			KARES		
30 F 3	YEN	REAL				3055	YESN						
3054	YLFMAX	REAL				3056	YL2FMX	REAL					
30F0	YXPT	REAL						REAL					
0	ZFUFMY	REAL		F.P.		3061	YYTL	REAL					
0	7FN	REAL		F.P.		-	ZFCMOV	REAL			F.P.		
C	ZLEMAX	REAL				J	ZF2N	REAL			F.P.		
0		PFAL		F.P.		0	ZL2FMX	RFAL			F.P.		
-9	2 - 71	AC AL		F.P.		0	ZXTL	REAL			F.P.		
FILE M	NAMES	MODE											
	CLIPUT	EMT		TAPFS	FMT								
EXTERN	AL C	THOS	1000										
EXIER		TYDE	ARCS										
	DCNEPL		٢				EOF	REAL	1				
STATEN	ENT LAPE	71.5											
1205		FMT		1213	40	_	МТ						
1240	45	FMT		1250						1227	43	FMT	
1276	Fr	FMT			47	-	ЧТ			26	50		
50	70	1		31	65					1335	67	FMT	
70	90			0	80					1357	85	FMT	
C	105			1375	92	F	MT			74	100		
1442	170	FMT		115	110					1424	120	FMT	
1464	1.60	FMT		133	140					136	160		
1566	200	EMT		1510	185		MT			1516	190	FMT	
10-10-10-10-10-10-10-10-10-10-10-10-10-1				172	203					1571	205	FMT	
1600	277	FMT		164	210					215	213		
1643	215	FMT		1605	217		MT			242	220		
1712	225	r w l		1720	227		MT			251	230		
C	240			1742	250	F	MT			277	270		
7.00	277			314	280					317	282		
322	264			325	285					330	288		
373	290			336	343					341	294		
2017	566	FMT		343	299					346	300		
2045	310	FWT		372	320				2	2072	330	FMT	
2102	386	FMT		403	350					2125	360	FMT	
2142	370	ENT		417	380				2	427	390		
440	430			2215	475	F	MT			460	440		
475	450			F27	460					546	470		
570	400			2351	495	F	мТ			602	500		
F 17	547			0	543					2420	545	FMT	
642	547			645	550				,	662	553	1. 1. 1	
0	55F			705	557					711	563		
9	262			732	570					740	575		
2524	580	CMT		744	590					534	600	FMT	
756	650			2567	530	F	MT			775	650	F FI	
1011	E70			1076	590					0	700		
2641	710	FMT		1055	740				9	703	760	FMT	
2711	785	FMT		1111	830					113	810	1.61	
1117	827			2733	940	F	MT			136	860		
1143	870			1172	880		40			773	900	FMT	
	1.40.	*****							-		200		
LCOPS	LAPEL	INULX	FRCM-10	LENGTH		PERTIES	S						
57	8.5	Ţ	57 58	28	7	STACK							
163	105	I	72 73	5 B	_	STACK							
270	240	* I	176 178	53	INS	STACK	EXITS						
		100				, ,,,,							

	SUBROU	TI	NE READEDS	7	4/74	0PT = 1			FTN 4.5+414	08/16/77	13.11.28
COPS 305 620 673 720 1037	L A 9 E L 277 5 6 7 5 6 5 5 6 6 7 C C		IND T X I I I I	345 375 387	- TC 193 347 376 388 457	LENGTH 38 58 28 29 58	PROPERTIES INSTACK INSTACK INSTACK INSTACK INSTACK INSTACK	EXITS			
COMMON	KAPDS		LENGTH 226							,	
	PAP LEN		MMON LENGT	н	3075P						

SUBPOUTINE	ONEFUN	74/74	OPT=1	FTN 4.5+414	08/16/77	13.11.28
1	SUPROL	UTINE CN	EFUN (FREN, NB, N, PEAK	BLO,BHI,XLO,XHI,FZROLO,FZROHI,	VIPRE	2707
	1 ALC . A	HI. FMIN.	FMAY . DBMIN . ISETZ , IF	RST, LPEAK, IFUN, ISCRPT, ILOHI)	VIPRE	2708
			Q(1),DR(1)		VIPRF	2709
					VIPRE	2710
5				S, IFLITE, CATGRY, ILINE 1(7),	VIPRF	2711
	1ITITL:	1(7),TPL	ANE(3), LXNAME(4), LY	NAME (4) , XCYCLE, YSTEP, YAXIS,	VIPRE	2712
	SIXAXIS	, HITE, HI	TE1, TIGLEN, X1, X2, X3	, X4, XX, IPHASE, INOPLT, IRLANK	VIPRE	2713
					VIPRE	2714
	CATA	IHI\SHHI	/, IX/EH (E) %/		VIPRF	2715
10					VIPRE	2716
					VIPRE	2717
	IFTIN	CELT.ED.	IBLANK) GC TO 15		VIPRF	2718
					VIPRE	2720
	IF(IL	CHI . Ed" I	HI) CO TO 5		VIPRF VIPRF	2721
15				T DIO DUT VIO VUT EZDOLO EZDOUT	VIPRE	2722
			E, IFLITE, IFUN, 15GFP	T, BLO, BHI, XLO, XHI, FZROLO, FZRCHI,	VIPRE	2723
	1 FLU, A	HI, DEAK	****** 7840 4U. A	19,8H********///* PARAMETERS OF *		2724
	1 FURMA	1 (1 11, 04	*D -* C44 7/0V *D#	-*-C11.3/	VIPRE	2725
0.0	105/1/	- # C11	,*B =*,G11.3/8Y,*B*	*F = * .G11 . 5/9X . *C*/	VIPRE	2726
50	26X 9 X	== ,611.	EARLY # (*ALV *ALDHA	,*F =*,G11.5/9X,*C*/ =*,G11.3/4X,*ALPHA*=*,G11.3/	VIPRE	2727
				,011.07 47, 72.117	VIPRE	2728
	60 TO		*,511.4)		VIPRE	2729
	60 10	1.0			VIPRF	2730
25	- DOTNI	10 TELA	AF . TEL TTE . TEUN . TSCR	PT, BHI, XHI, FZROHI, AHI, PEAK	VIPRF	2731
6.5	1' FORMA	T ( 1 H 1 . AH	******* TA10.1HA	10, 8H******** ///* PARAMETERS OF *	VIPRF	2732
	105/17	Y. A 2//AX	,*R'=*,611.3/8X,*X*	=*, F7.3/	VIPRF	2733
	28Y. *F	*= * . G11.	5/97 . + 0 + / 4X . + ALPHA .	= *, G11.4/2X, *MAX.VAL. = *, G11.4)	VIPRF	2734
	Luxy	- ,	, , , , , , , , , , , , , , , , , , ,	,	VIPRF	2735
30					VIPRF	2736
	15 CALL	XFERFUN (	FRED , DR . N. PEAK , XLO,	XHI,BLC,BHI,FZROLO,FZROHI,ALC,AHI	, VIPRF	2737
	1ILCHI	)			ATAKE	2738
					VIPRF	2739
					VIPRE	2740
35	IF(IS	ET7. E7. 0	) GO TO 49		VIPRE	2741
	00 20	I = 1, N			VIPRE	2742
	IF (DP	(1) .05.0	.) GO TO 40		VIPRF	2743
	21 PB(I)	= ? .			VIPRF	2744
					VIPRE	2745
40					VIPRE	2746
			IPLANK) RETURN		VIPRF	2748
	XVXIC	= ALCG10	FMAX/FMIN) * XCYCLE	AUE VAVIO WAVION	VIPRE	2749
	CALL	TITLE (1)	1,1,LXNAME,+100,LYN	AME, +100, XAXIS, YAXIS)	VIPRE	2750
1000					VIPRE	2751
45		FEIGHT(F			VIPRE	2752
			LINF1,+190,2,3)		VIPRE	2753
			TITL1,+100,2,3)		VIPRE	2754
		PESFT ("F	PLAME, +30,2,3)		VIPRE	2755
F.0			L/CSTO")		VIPRE	2756
50		ALIUNG			VIPRE	2757
	THEL				VIPRE	2758
	VV-DE	AK SCALL	DREI MAXIYY . YSTEP . D	BMAX) \$0 RMIN=08MAX-40.0	VIPRE	2759
	CALL	AT UCCENT	N, XCYCLE, CBMIN, YSTE	P)	VIPRE	2760
F 5			ICLEN, FMAX, YSTEP, YA		VIPRF	2761
7.77	THEL	1 10000			VIPRE	2762
	IFIRS	T = 0			VIPRE	2763
	11.143					

SUPPOUTI	NE OMETUN	74/7' OPT = 1	FTN 4.5+414	08/16/77	13.11.
	00 6	SC I= 1, N		VIPRF	2764
	IFIR	ST=IFISST+1 *IF(DR(IFIRST	GC.DEMIN) GC TC 80	VIPRE	2765
F ?	E' LOVI			VIPRE	2766
				VIPRE	2767
	9 7 K = 0			VIPRE	2768
	00 1	USC I=IFIPST.N		VIPRE	2769
	IF(D	CST OT 05 (NIMAG.TJ. (I) 90		VIPRE	2770
6.5	103 K=K+	• 1		VIPRE	2771
				VIPRE	2772
	127 CALL	TOPLE (FREC (IFIRST), DR(IF	(PST) . K. IFUN. ISCRPT)	VIDRE	2773
		CUEVE (FRED (IFIRST), DR (IF		VIPRE	2774
				VIPRE	2775
7 0	CALL	HEIGHT (HITE1)		VIPRF	2776
	X 1 = 1	. 13*FMIN TX2=PEAK+n. 5		VIPRE	2777
		FLMESS(LPEAK,+100,X1,X2)		VIPRE	2778
		PLPEAL (DEAK, +1, "APIJT", "A	BUT")	VIPRE	2779
		RLMESS (" (3) ",+170,"ABI		VIPRE	2780
7.5		PFIGHT(0.5*HITE1)	, , , , , , , , , , , , , , , , , , , ,	VIPRE	2781
		RLMFS?(" (M) \$",+10J, X1,	(2-0.5)	VIPRE	2782
		, , , , , , , , , , , , , , , , , , , ,		VIPRE	2783
				VIPRE	2784
	DYMA	L=1. F*HITE**STEP SCALL HE	GHT(HITE1)	VIPRE	2785
r n				VIPRE	2786
	Y 1 = 3	.141 50265-ATAN2 (2. 1* RHI* ()	(HI**AHI).1.C-XHT*XHI)	VIPRE	2787
		= FE AK+23. 0*AL PG 10 (3. 14159)		VIPRE	2788
		CUPVE (FZROHI, YVAL, 1, 1)		VIPRE	2789
		-, -, -, -, -, -, -, -, -, -, -, -, -, -		VIPRE	2790
PE	IF(I	LCHI.EG.IHI.OF.FZPCLO.LT.F	MIN) GO TO 140	VIPRE	2791
				VIPRE	2792
	Y 1 = A	TAK2 (2.0 * ELO * (YLO * * ALO) , 1.	-XLO*XLO)	VIPRE	2793
		=PFAK+26.0*ALOC10(3.14159		VIPRE	2794
		CLRV (FZROLO, YVAL, 1, 1)		VIPRE	2795
9.0				VIPRE	2796
	14 CALL	LCCFEYA(BLO.EHI.XLO.XHI.E	ZROLO, FZROHI, ALC, AHI, FMIN, FMAX,	VIPRE	2797
		. CYVAL . ILCHI)	21020,1210,11,120,211,111,111,111,11	VIPRE	2798
	-	,		VIPRE	2799
	¥ X = ₺	LCC10(FMAX)-1.10/XCVCLE 4)	(X=10.6**XX	VIPRE	2800
-		PMAX-3.25*YSTEP		VIPRE	2801
			,H,X,IX,RS,IFLITE,HITE,HITE1)	VIPRE	2601
		, , , , , , , , , , , , , , , , , , , ,	, , , , . , , , , , , , , , , , , , , ,	VIPRE	2803
	SE 10	PN		VIPRE	2804
	END			VIPRE	2805

#### SYMPOLIC REFERENCE MAP (R=1)

# ENTRY PCINIS

VARIAD	FEE	SN TYPE	RELOCATION					
C	ALT	DFAL	F.O.	0	ALC	REAL		F.P.
C	BFI	SEVE	F.F.	0	RLC	REAL		F.P.
7	CATGRY	REAL	PPLCTT	G	DB	REAL	ARRAY	F.P.
€75	DEMAX	SLVF		0	DEMIN	REAL		F.P.

	SLPPOU	TINE ONEFU	74/74	CPT=1			FTN 4.	5+414	08/16/	77 1	3.11.28
VARIA	PICC	SN TYPE	2.5	I COATTON					00,10,		3.11.20
	DYVAL	REAL	45	LOCATION	121	7					
0	FMTN	REAL			0	FMAX	REIL		F.P.		
n	F7R04I	REAL		F.F.	0	FREO	RFIL	ARRAY	F.P.		
C	Н			F.P.	0	FZROLO	REAL		F.P.		
46	HITE1	RFAL		<b>PPLOTT</b>	45	HITE	REAL		PPLCTT		
		REAL		PPLOTT	574	I	INTEGER				
57		INTEGER		<b>PDLUIT</b>	0	IFIRST	INTEGER		F.P.		
€	IFLITE	INTEGER		PPLOTT	0	IFUN	INTEGER				
545	IHI	INTEGER			10	ILINE1	INTEGER	40044	F.P.		
0	IFUHI	INTEGER		F.P.	56	INCPLT		ARRAY	PPLOTT		
55	IPHASE	INTEGER	ic.	PPLOTT			INTEGER		FFLCTT		
0	ISCRPT	INTEGER		F.P.	26	IPLANE	INTEGER	ARRAY	PPLOTT		
17	ITITL1	INTEGER		FPLOTT	0	ISETZ	INTEGER		F.P.		
676	K	INTEGER		PPLUII	546	IX	INTEGER				
31	LXNAME				0	LPEAK	INTEGER		F.P.		
C	N	INTEGER		PPLOTT	35	LYNAME	INTEGER	ARRAY	PPLCTT		
		INTEGER		F.P.	0	PEAK	REAL		F.P.		
3	RS	REAL		PPLOTT	47	TICLEN	REAL		PPLCTT		
4	WE	REAL		PPLOTT	5	WS	REAL		PPLOTT		
2	×	REAL		PPLOTT	44	XAXIS	RFAL		The second secon		
41	XCAUTE	PEAL		PPLOTT	0	XHI	REAL		PPLOTT		
C	XTO	REAL		F.P.	1	XMAKNO			F.P.		
54	XX	REAL		PPLOTT	50		REAL		PPLCTT		
51	X Z	REAL		PPLOTT		X 1	RFAL		PPLOTT		
53	XL	REAL			52	X 3	RFAL		PPLCTT		
42	YSTED	REAL		PPLOTT	750	YAXIS	REAL		PPLOTT		
FT1 F A				LOTT	750	YVAL	REAL				
FILE A	OUTPUT	MUDE									
EXTERN	ALS	TYDE	ARCS								
	ALOG10	REAL									
		REAL	1 LIPRAF	5 🔻		ATAN2	RFAL	2 LIBEA	RY		
	BACALE		1			CURVE		4			
	DEELMAX		3			HEADIN		4			
	HEIGHT		1			LOCFEXA		13			
	DARAMS		11			RESET		1			
	BLMESS		L			PLREAL					
	TABLE		F			TICKMK		4			
	TITLE		P					5			
	XLOG		4			XFERFUN		13			
			4			ALICKS		1			
	ENT LAPF										
567	1	EMT		24	5			634	10	FMT	
26	1.5			0	20					- MI	
3	50			147	80			€4	40		
1 = 1	120			302				0	100		
LCOPS	LADEL	INDEX	FRCM-TC	LENGTH	PROPERTIES						
F6		* I	36 38	68							
140		* I	E8 60		INSTACK	EXITS					
152		* I	63 65	78 78	INSTACK	EXITS					
COMMON	PLOCKS	LENGTH			2101701	C 1113					
5511.011	PFLOTT	48									
STATIST	TICS										
	RAP LENGT	r u	46270								
			1003R								
L L	ABELEN CO	DAMON FENCT	H 208	48							

SUBPOUTINE	TWOFUN	74/74	OPT=1	FTN	4.5+414	08/16/77	13.11.28
1	SUPR	OUTTNE T	WCFUN(FRF9.081	,DB2,N,FMIN,FMAX,DEMIN,D	YVAL)	VIPRF	2806
1			EQ(1) .D81(1) .C			VIPRF	2807
	01.2	M. TON THE	_ 4(1),001(1),0	72.12.		VIPRF	2808
	COMM	ON/PPLOT	T/H.XMAKNO.X.R	S, WE, WS, IFLITE, CATGRY, IL	INE1(7),	VIPRE	2809
5	11111	11(7).IP	LANE (3) . LXNAME	(4) , LYNAME (4) , XCYCLE, YST	EP, YAXIS,	VIPRF	2810
	2XAXI	S.HITE.H	ITE1.TICLEN.X1	, X2, X3, X4, XX, IPHASE, INOP	LT, IPLANK	VIPRF	2811
	2//4/12			,,,.		VIPRF	2812
	DATA	IX/5H (	E)\$/			VIPRF	2813
						VIPRF	2814
10						VIPRF	2815
20	DBMA	X=-1.0E3				VIPRF	2816
	00 1	0 I=1.N				VIPRF	2817
	× 1 = 5	B1(I) EX	2=C82(I) \$X3=)	(1+X2 \$DB2(I)=X3		VIPRE	2818
				X3=10.0**(X3/10.)		VIPRF	2819
15	IF()	PHASE . EQ	. 1) PRINT 20, F	REQ(I), X1, X2, DB2(I), X3		VIPRF	2820
	10 CONT	INUE.				VIPRF	2821
	20 FORM	AT 16 61 E.	5)			VIPRF	2822
						VIPRF	2823
	IF()	PHASE . EQ	. 0) RETURN			VIPRF	2824
20						VIPRF	2825
		L=1.5*HI				VIPRF	2826
	X 1 = F	THMAX SCA	LL DBELMAX(X1;	YSTEP, DBMAX)		VIPRE	2827
				(1-DB2(1)).LE.35.0) GO TO	30	VIPRF	2828
	YSTE	P=10.0 \$	DEMIN=DEMAX-80	1.0 \$DYVAL = 2.0 * DYVAL		VIPRF	2829
25						VIPRF	2830
			(FMAX/FMIN) *X			VIPRF	2831
	CALL	TITLE (1	H ,1, LXNAME, +:	LOO,LYNAME,+100,XAXIS,YAX	IS)	VIPRE	2832
						VIPRF	2833
		- HEIGHT (				VIPRF	2834
36			ILINE 1, +10C, 2			VIPRF	2835
			ITITL1,+100,2	, 3)		VIPRF	2836
		FESTI ("				VIPRF	2637
	The state of the s	The state of the s	IPLANF, + 70, 2,	3)		VIPRF	2838
			"L/CSTD")			VIPRF	2839
36		- ALICKE				VIPRF	
			IN, XCYCLE, CBM			VIPRF	2841
	CALI	- TICKMK	TICLEN, FMAX, Y	STEP, YAXIS, CBMIN)		VIPRE	2843
						VIPRE	2844
		4C T=1,N		- DDMTN		VIPRE	2845
40	-		.CEMIN) DR2(I	I = URAIN		VIPRE	2846
	42 004	I I NUE				VIPRE	2847
	0.41	CHONE (	050 DD2 N 01			VIPRE	2848
	CAL	L CORVE (F	REO, DP2, N, 0)			VIPRE	2849
	V4-	AL OC 1 C / C M	1AV) =1 .1/YCYCI	E \$X1=10.0**X1		VIPRF	2850
45		DRMAX-0.2		- 071-10.0.7		VIPRE	2851
	X2=1	DALLAX - C. • 2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MAKNO,H,X,IX,RS,IFLITE,HI	TF.HTTF1)	VIPRE	2852
	RET		UVI 1 VE 1 OL AMP 1 V	14 15 15 15 15 15 15 15 15 15 15 15 15 15	,	VIPRE	2853
	END	UKIN				VIPRE	2854
	E NI.						-

SYMBOLIC REFERENCE MAF (R=1)

		•								
	SLOROUT	INE TWOFUN	74174	OPT = 1			FTN 4.5	5+414	08/16/77	13.11.28
FNTPY	PCINTS									
	TWOFUN									
VARIA	150	SN TYP-	95	LOCATION						
	CATGGY	REAL	,,,	PPLOTT	704	DOMAN				
r	DEMIN	REAL		F.P.	321		RFAL			
C	DES	REAL	ARRAY	F.P.	0	Commence of the Commence of th	REAL	ARRAY	F.P.	
C	FMAX	PEAL	ALC: YES	F.P.	0	The second second second	REAL		F.P.	
0	FRED	REAL	ARRAY	F.F.	0	FMIN	RFAL		F.P.	
45		REAL	Market	PPLOTT	46		REAL		PPLCTT	
322	T	INTEGER		116611	57		REAL		PPLCTT	
E	IFLITT	THITESER		PPLOTT	10		INTEGER	40044	PPLOTT	
F6	INOPLT	INTEGER		PPLOTT	55		INTEGER	ARRAY	PPLCTT	
25	IPL ANT	THITEGER	APRAY	PPLOTT	17		INTEGER	ARRAY	PPLCTT	
266	Ix	INTEGER	E. 17		31		INTEGER		FPLOTT	
35	LYNAME	INTEGER	AFRAY	FPLOTT	0	N	INTEGER	ARRAY	PPLCTT	
7	Re	REAL	- 14	PPLOTT	47		REAL		F.P.	
4	WE	REAL		PPLOTT	5		REIL		PPLOTT	
2	X	REAL		PPLOTT	44		REIL		PPLOTT	
41	XCACFE	REAL		PPLOTT	1	XMAKNO	REAL		FPLOTT	
54	XX	REAL		PPLOTT	50		REAL		PPLCTT	
F1	X 2	RFAL		PPLOTT	52		REAL		PPLCTT	
57	X4	RFAL		PPLCTT	43		REAL		PPLOTT	
42	YSTEP	PFAL		PPLOTT	40		NEAL		PPLOTT	
FILE N	AMEC	MOD=								
	OUTPUT	FMT								
EXTERN	ALS	TABE	APES							
	ALDG10	REAL	1 LIPRA	PY		PASALF		1		
	CURVE		4			DEFLMAX		3		
	HEADIN		b			HEIGHT		1		
	PARAMS		11			RESET		1		
	TICKMK		r.			TITLE		P		
	AFUE		4			YTICKS		1		
INLINE	FUNCTION	S TYPE	ARGS							
	AES	REAL	1 INTR	IN						
STATEM	ENT LAPPL	<								
	10			277	20 F	МТ			7.0	
Ö	é n			211	40 F	THE STATE OF THE S		67	30	
LCOPS	LAPEL	INDEX	FRCM-TC	LENGTH	PROPERTIE	2				
		I	12 16	258	KOI LKIII	EXT REFS				
135	40	ī	30 41	39	INSTACK	LAI REFS				
CCMMON	PLOCKS	LENGTH								
	PPLOTT	48								
STATIS	TICS									
	RAM LENGT	H	3528	234						
		MMON LENGT								
-			201	70						

SUPPOUT	INE FOLE	3XA 74/7	74 OPT = 1	FTN 4.5+414	08/16/77	13.11.28
1		SUFROUTIN	F LOCEBXA(BLO.BHI.XL	O,XHI,FZRCLO,FZROHI,ALO,AHI,FMIN,	VIPRF	2855
	1		,CYVAL,ILOHI)		VIPRF	2856
	28		,		VIPRF	2857
		COMMON/PFI	LCTT/H, X MAKNO, X, RS, W	E, WS, IFLITE, CATGEY, ILINE 1 (7),	VIPRF	2858
5				,LYNAME (4), XCYCLF, YSTEP, YAXIS,	VIDRE	2859
			F, HITE1, TICLEN, Y1, X2		VIPRF	2860
					VIPRE	2861
		CATA IFI/	SHHI/		VIPRF	2862
					VIPRE	2863
10		WIFTH=1.2	F.		VIPRE	2864
		FZLO=FZRC	LC FIF (F7FCLO.LT.FMI	N) FZLO=FMIN	VIPRE	2865
		FZHI=FZRO	HI SIF (F7POHI.GT.FMA	X) EZHI=EMŅX	VIPRF	2866
		IF (ILCHI.	NE.IHI) GO TO 100		VIPRE	2867
		X3=F7H1 4			VIPRE	2868
15		CHIMAX=AL	DG10 (FMAX/F7HI) *XCYC	LE SIF (DHIMAX.GE.WIDTH) GO TO 220	VIPRE	2869
		X3=FMIN T	X4=F7HI		VIPRF	2870
		25 LU 55L			VIPRE	2871
					VIDEE	2872
	101			E \$DHIMAX=ALOG10 (FMAX/FZHI) *XCYCLE	VIPRF	2873
50		XX=ALCG10	(F7LO/FMIN) *XCYCLE \$	IF(XX.LT.WIDTH) GO TO 140	VIPRE	2874
		IE (DHIMAX	.LT. WIDTH) GO TO 120		VIPRF	2875
		X1 = FMTH E	X2=F7L0 5X3=F7HI 5X4	=FMAX	VIPRF	2876
		30 TO 200			VIPRE	2 6 7 7
					VIPRE	2878
25	12	XI=EMIN :	Y4=FZLO SIF(DLOHI.LT	.WIDTH) GO TO 180	VIPRF	2 47 9
			XE=FZLO SX3=FZLO 3X4	=F7HI	VIPRF	2880
		e0 10 Sûu			VIPRF	2881
					VIPRE	2882
	147		LT.WIDTH) GO TO 160		VIPRE	2883
36		X1=F7LC 3			VIPRE	2884
			.LT.WIDTH) GO TO 180		VIPRE	2885
			X2=FZHI 3X3=F74I 3X4	=F7HI	VIPRF	2886
		60 TO 201			VIPRE	2887
					VIPRE	2888
.75	15		.LT.WINTH) RETURN		VIPRE	2889
		X1=F7HI 7	X4=FMBX		VIPRE	2891
					VIPRE	2892
	180		(x4/x1) * XCYCLE \$XX=(		VIPRE	2893
				H)/XCYCLE \$X3=10.0**X3	VIPRE	2894
40		x5=x5+(5.	D*XX+WIDTH)/XCYCLE \$	A C = 1 U • U 1 T A C	VIPRE	2895
	2	CALL 5504	FA (F7) 0 BL 0 VI 0 AL 0	V4 V2 VUAL DANAL VOVOLE 3 01	VIPRF	2 8 9 6
				X1,X2,YVAL,DYVAL,XCYCLE,3,C)	VIPRE	2897
	223	TALL FRAX	PRIFZEL, MHI, XHI, AHI,	X3,X4,YVAL,DYVAL,XCYCLE,3,1)	VIPRE	2898
		CC TUDA			VIPRE	2809
L 5		RETURN			VIPRE	2900
		ENL			ATEKE	2 200

CYMBOLIC REFERENCE MAF (R=1)

ENTRY DCINTS

1

	SUBROUT	INE LOCFEXA	74/74	OPT = 1			FTN 4.5	+414	08/16/77	13.11.28
VARIAE	I E C	SN TYPE	RE	LOCATION						
0	AHI	RFAL		F.P.	0	ALO	RFAL		F.P.	
0	BHI	REAL		F.P.	0	BLO	REAL		F.P.	
7	CATGRY	REAL		PPLOTT	222	DHIMAX	REAL			
223	DLOHI	REAL			0	DYVAL	REAL		F.P.	
0	FMAX	REAL		F. P.	0	FMIN	REAL		F.P.	
221	FZHI	RFAL			220	FZLO	REAL			
0	FZPOHI	REAL		F.P.	0	FZROLO	RFAL		F.P.	
0	Н	REAL		PPLOTT	45	HITE	RFAL		PPLOTT	
46	HITE1	REAL		PPLCTT	6	IFLITE	INTEGER		PPLCTT	
206	THT	INTESER			10	ILINE1	INTEGER	ARRAY	PPLOTT	
0	ILOHI	INTEGER		F.P.	55	IPHASE	INTEGER		PPLOTT	
26	IPLANE	INTEGER	BRRAY	PPLOTT	17	ITITL1	INTEGER	ARRAY	PPLOTT	
31	LXNAME	INTEGER	AFRAY	PPLOTT	35	LYNAME	INTEGER	ARRAY	PPLCTT	
3	RS	REAL		PPLOTT	47	TICLEN	REAL		PPLOTT	
4	WE	REAL		PPLCTT	217	WICTH	REAL			
5	WS	REAL		PPLOTT	2	X	REAL		PPLOTT	
44	XXXIC	REAL		PPLOTT	41	XCYCLE	RFAL		PPLOTT	
C	XHI	REAL		F.D.	0	XLO	REAL		F.P.	
1	XMAKNO	REAL		PPLOTT	54	XX	REAL		PPLOTT	
FO	X 1	REAL		PPLOTT	51	X 2	REAL		PPLCTT	
F 2	Y7	REAL		PPLOTT	53	X 4	REAL		PPLOTT	
63	PIYAY	RFAL		PPLOTT	42	YSTEP	REAL		PPLCTT	
0	YVAL	REAL		F.P.						
EXTER	MLS	TYDE	AREC							
FA KITAN	ALOG10	REAL	1 LIDEA	PY		FRCXBA		11		
STATE	ENT LAPE	LS								
74	100			61	120			71	140	
102	1 6 0			107	180			133	200	
144	550									
COMMCI	PLOCKS	LENGT4								
	PFLOTT	45								
STATE	STICS									
	COAN LENG		271							
CH	LARELED C	ONNON FENGT	H 56	5B 46						

SUPROUTI	NE DRELMAX	74/74	CPT=1			FTN 4.5+414	08/16/77	13.11.28
1	J=1 10 08MA	AK/YSTEP \$SIGN=1.0 X=YSTFO*( MCO(PEAK,	I+J)	-1.0 \$IF	(PEAK.LT.	0.) GO TO 10	VIPRF VIPRF VIPRF VIPRF VIPRF VIPRF	2901 2902 2903 2904 2905 2906 2907
SYMMOLIC  ENTRY PCINTS  7 DEFLUBY	REFERENCE M	AP (R=1)						
O DEMAY 36 J 37 SIGN	PEAL INTECER RTAL	₹ <b>F</b> L(	CATION F.F.	35 0 0	I PEAK YSTEP	INTEGER Real Real	F.P. F.P.	
STATEMENT LAPELS	REVE	S INTRIN						
15 1° STATISTICS PROCPAM LENGTH		408	32					

STABULLIN	E GPOINTS	74/74	OPT = 1	FTN 4.5+414	08/16/77	13.11.28
1	SURR	OUTINE G	POINTS (FPEC,	DEGBEL, FRO, FMAX, CONST, DB, XFERMX, TWOB, FLX		2908
			, ALPHA, II, J,		VIPRF	2909
	CIME	NSION XF	RPX(L),TWU3	(4) ,FZ(4) ,ALPHA(4) ,FLX(4)	VIPRE	2910
E	1.1.46	N 1 1 0 N + X	- C(1) , DEG3EL	(1), N9(4), DBPRV(4), HILO(4), SIGN(4)	VIPRF	2911
	40 00 0	2 T-4 W			VIPRF	2912
	13 00 2		70 00		VIPRE	2913
		.EG. I) G		2.73	VIPRE	2914
			SUBDEA(I) =U		VIPRE	2915
10				10((HILO(I) +SIGN(I) +ATAM2(	VIPRF	2916
1'	27 CONT		ALDHA(1)),1	X1*X1))/FLX(I))	VIPRE	2917
	2 1001	INCE			VIPRF	2918
	V4 - D		DD401 047 D4	2/31 444 22/11 4-24/22	VIPRE	2919
			GC TO 30	B(3) \$X4=DB(4) \$ITYPEP=ITYPE	VIPRE	2920
15			GO TO 46		VIPRF	2921
1			GC TO 50		VIPRE	2922
		F=1 300			VIPRF	2923
	1111	1 :10	0 00		VIPRF	2524
	33 TE (Y	2.15. 771	GO TO 40		VIPRF	2925
20			GO TO 50		VIPRF	2926
. 0		E=2 *GC '			VIPRF	2927
	1.1.	-2	0 30		VIPRF	2528
	4" TEIX	3.15.X41	GO TC 50			
		E=3 460 1			VIPRF	2930
25			0 00		VIPRE	2932
	LL ILAD	F = 4			VIPRE	2933
		-			VIPRE	2534
					VIPRE	2935
	6: IF (I	TYPE . NE . 1	TYPER AND IT	I.EO. 2) GO TO 70	VIPRE	2936
36				EL(J) = DB(ITYPE) \$GO TO 80	VIPRE	2937
				22107 301211127 300 10 00	VIPRE	2938
	70 X1=0	PPRV (ITY	E) - DEPRV(ITY	PEP)	VIPRE	2939
				(1+DB(ITYPEF)-DB(ITYPF))	VIPRE	2940
			1) = FRC \$X1=FR		VIPRE	2941
35	X1=X	FFRMXCITY	PE) +20 . *ALO	G10((HILO(ITYPE) +SIGN(ITYPE) *	VIPRE	2542
	1ATAN:	2 (TWOP (IT	YPE) * (X1 ** 4L	PHA(ITYPE)),1X1*X1))/FLX(ITYPE))	VIPRF	2943
		EL(J)=X1			VIPRE	2944
					VIPRE	2545
				E.503.0) X1=CONST/2.0	VIPRE	2946
40	IF (F	RO.LT.ZC.	C.OR. FRQ. CT.	.500.0) X1=CCNST	VIPRE	2547
	FPRV:				VIPRE	2948
				(FMAX) RETURN	VIPRF	2549
		960 TO 1	. 0		VIPRF	2950
	END				VIPRF	2951

### SYMPOLIC REFERENCE MAP (R=1)

# S CEDINIS ENTRY ECTIVIS

VARIAF	re2	SN TYPE	251	LOCATION					
0	ALPHA	PFAL	APRAY	F.F.	0	CONST	REAL		F.P.
û	UE	SEAL	ARRAY	F.P.	206	DRPRV	REAL	ARRAY	

	SLABOU	TI	NE CHOINTS	74/74	OPT =1				FTN 4.5	5+414	08/16/77	13.11.28
VARIA	LES	S	N TYPE	RE	LCCATION							
0	DECELL		REAL	ARRAY	F.P.		0	FLX	REAL	ARRAY	F.P.	
C	FMAX		RFAL		F.P.		205	FPRV	REAL	A.(II.A.)		
0	FREO		PEAL	ARRAY	F.P.		0	FRO	REAL		F.P.	
C	FZ		REAL	ARRAY	F.P.		0	HILO	REAL	ARRAY	F.P.	
176	I		INTEGER				0	II	INTEGER	AKKAI	F.P.	
204	ITVOS		INTERER				203	ITYPEP	INTEGER		F.F.	
0	3		INTEGER		F.P.		0	K	INTEGER		F.P.	
0	L		INTEGER		F.P.		0	SIGN	REAL	ARRAY	F.P.	
C	THOR		REAL	ARRAY	F.P.		0	XFERMX	REAL	ARRAY	F.P.	
177	X 1		REAL				200	X 2	REAL	ANNET	r • F •	
201	X 3		REAL				202	X 4	RFIL			
EXTERN	ALS		TYPE	ARGS								
	ALOGIO		REAL	1 LIPRA	RY			ATANZ	RE IL	2 LIBRAR	<b>Y</b>	
STATEM	ENT LAR	FL	5									
15	10				40	20				56	7.0	
63	40				67	50				70	30	
104	72				145	80				70	60	
LCOPS	LADEL		INDEX	FROM-TC	LENCTH	PROF	PERTIE	S				
16	21	*	I	F 11	258			EXT REFS				
STATIS	TICS											
PPOC	RAN L-NO	FT	1	255	173							

SUPROUT	NE YFEREUN 7	4/74 OPT=1	FTN 4.5+414 08	/16/77	13.11.28
1	TUOREUZ	THE XEERFUN(FREC. DE	GREL,N,PEAK,XLO,XHI,PLO,RHI,FZEROL,	VIPRF	2952
		ALC, AHI, ILCHI)		VIPRE	2953
		ON FREG (1) , DECREL (	)	VIPRE	2954
		/3.14159265/.IHI/25		VIPRE	2955
F		(ILCHI.EQ. IHI) GO		VIPRF	2956
	0 . 01			VIPRF	2957
	FN & X = XI	OFFZEROL THORE 2. *F	BL O	VIPRE	2958
		N2 (TWOB* (XLO**ALO)		VIPRF	2959
				VIPRF	2960
10	no 10 I	= 1 • N		VIPRF	2961
1		D=F=FO(I) 4JF(FR).	ST.FMAX) GO TO 20	VIPRF	2562
	X1=FRC/			VIPRE	2963
			(ATAN2 (TWOE* (X1**ALO),1X1*X1)/FLX)	VIPRE	2964
				VIPRF	2965
15	2" X1 = FMAX	EFMAX=YHI*FZEROH	FIF(X1.EQ.FMAX) GO TO 40	VIPRF	2966
		O(J) \$IF(FFO.GT.FM		VIPRF	2967
	CECEEL (	J) = F AK & J = J+1		VIPRE	2968
	GO TO 2	0		VIPRE	2969
				VIPRF	2970
20	42 TWOB=2.	* BHI FFLX=PI-ATAN?	(TWOS*(XHI**AHI),1XHI*XHI)	VIPRF	2971
				VIPRF	2972
	no 50 I	= J • N		VIPRE	2973
		O(I) SX1=FRO/FZESO	4	VIPRF	2974
			((PI-ATAN2(TWOB*(X1**AHI),1X1*X1))/FLX)	VIPRF	2975
25	2. 122.			VIPRE	2976
•	FETURN			VIPRF	2977
	FNC			VIPRE	2978

SYMBOLIC REFERENCE MAP (R=1)

## 3 XEEBEIN ENTRY OCTIVES

VARIATLES         SN         TYPE         RFLOCATION           0         AHI         RFAL         F.P.           0         9HI         RFAL         F.P.           0         9HI         RFAL         F.P.           0         DECBEL         REAL         ARRAY           133         FMAX         RFAL         0           137         FRO         RFAL         0           0         FZEROL         REAL         F.P.           136         I         INTEGER           126         JHI         INTEGER         0           ILOHI         INTEGER         F.P.	
0 AHI REAL F.P. 0 ALO REAL F.P. 0 PHI REAL F.P. 0 PHI REAL F.P. 0 PHI REAL ARRAY F.P. 135 FLX REAL 0 FRED REAL ARRAY F.P. 137 FRO REAL 0 FZEROH REAL F.P. 0 FZEROH REAL F.P. 136 I INTEGER 126 JHI INTEGER F.P. 0 ILOHI INTEGER F.P.	
0 0 0 1	P •
O DECREE REAL APRRY F.P. 135 FLX REAL  133 FMAX REAL 0 FREQ REAL ARRAY F.P.  137 FRQ REAL 0 FZEROH REAL F.P.  0 FZEROL REAL F.F. 136 I INTEGER  126 JHI INTEGER 0 ILOHI INTEGER F.P.	P •
133 FMAX RFAL 0 FRED RFAL ARRAY F-P-0 137 FRO REAL 0 FZEROH RFAL F-P-0 0 FZEROL REAL F-F-0 126 JHI INTEGER 0 ILOHI INTEGER F-P-0	
137 FRO REAL 0 FZEROH RFAL F-P-0 FZEROL REAL F-P-0 I36 I INTEGER 126 JHI INTEGER 0 ILOHI INTEGER F-P-0	, P .
0 FZEROL REAL F.F. 136 I INTEGER 126 JHI INTEGER 0 ILOHI INTEGER F.P.	P.
126 JHI INTEGER 0 ILOHI INTEGER F.P.	
156 161 114 114 115	P.
132 J INTEGER 0 N INTEGER F.P.	
137 3	R IA
A WIT DEAL	P.
134 1405	
0 XLO PEAL F.P. 140 X1 REAL	
EXTERNALS TYPE ARCS	
ALOGIC REAL 1 LIDRARY ATAMS REAL 2 LIBEARY	
STATEMENT LARELS	
0 10 54 20 0 30	INACTIVE
70 40	

	SUPROL	ITI	NE XFEREUN	7	4/74	0PT = 1		FTN 4.5+414	08/16/77	13.11.28
	LAPEL 10 50	*	I INUSA		-TC 13 24	LENGTH 219 20B	REFS REFS	EXIIC		
STATIS	TICS	VET	h		177	n 127				

	SLBROUTINE	PARAMS	74/74	OPT = 1			FTN 4.5+414	08/16/77	13.11.28
	1	SUPRI	DUTINE PA	ARAMS (XVAL,YVA	L,DYVAL	,XMAKNO,H,	DISTFT, JX, RS, IFLITE,	VIPRE	2979
			HITE1)					VIPRE	2980
		CALL	HEI CHT (H	HITE1)				VIPRE	2981
		CALL	RLMESS (	'(M) = \$", +100, X	VAL, YVA	L)		VIPRE	2982
	5	CALL	FLRFAL ()	(MAKNO,+2,"ARU	T", "ABU	T")		VIPRE	2983
		CALL	BEWESS (.	'(H)= ",+100,X	VAL, YVA	L-DYVAL)		VIPRE	2984
		II=H	CALL IN	NTNO(II, "ABUT"	, "ABUT"	)		VIPRE	2585
		CALL	FLMESS (	' FT.5",+100,"	ABUT","	ARUT")		VIPRF	2586
		CALL	ELMESS (.	'(x) = 9", + 100,	XVAL, YV	AL-2.0+741	AL)	VIPRE	2587
1	10			DISTET,1,"ABUT				VIPRF	2588
				' FT. 9",+100,"				VIPRF	2589
				JX,+100,XVAL,Y				VIPRF	2990
				'(R) =\$",+100,		AL-3.5* DYV	AL)	VIPRE	2991
				RS,+1,"ABUT","				VIPRF	2992
1	15			' IN.5",+100,"				VIPRF	2993
				' S S",+100,XV	AL, YVAL	-4.0*DYVAL	)	VIPRF	2994
			RESETT"					VIPRF	2995
				FLITE, 10, XVAL	, YVAL -	5.0 TOYVAL)		VIPRF	2996
10				'L/CSTO")				VIPRE	2997
5	n		HEIGHT (H	(ITE)				VIPRE	2998
		RETUR	5 V					VIPRF	2909
		END						VIPRF	3000
	SYMBOLIC RE	FERENCE MA	F (R=1)						
·RY	SYMBOLIC RE	FEERENCE MA	F (R=1)						
		FFERENCE MA	F (R=1)						
7	POSENC PCINTS	TYPE		.ccation					
PIDF	PCINTS PARENC			OGATION F.P.	C	DYVAL	RFAL	F.P.	
PIAF	PCINTS PARANC  LES SN DISTET	TYPU			_	DYVAL HITE	RFAL REAL	F.P.	
PIDF O	PCINTS PARAMS  LES SN DISTET F	TYET		F.F.	0	Carlo de la companya			
PIDF	PCINTS PARAMS  ELES SN DISTET F	SEVE TABE		F.F.	0	HITE	REAL	F.P.	
PIDF	PCINTS PARAME  LES SN DISTET F H ITF1 F	SE OF LACA		F.F.	0	HITE IFLITE	REAL INTEGER	F.P.	

HEIGHT

RESET

225

3418

EXTERNALS

PASALE

INTNO

BIMECC

STATISTICS PROGRAM LENCTH

TYPE ARCS 1 3

1 1 4

197

SUPROUTIN	TAPLE	74/74	0PT=1	FTN 4.5+414	08/16/77	13.11.2
1	SUB	FOUTINE TA	ABLE(FRED, D3, N, IFUN	N. ISCRPT)	VIPRE	3001
			Q(1), DP(1)		VIPRE	3002
	FRI	NT 10, IFU	, IFUN, IFUN, IFUN, IS	CRPT, ISCRPT, ISCRPT, ISCRPT	VIPRE	3002
	13 FOP	MAT(1H-,*	FR=7. (HZ.)*,2X,A15	,3(14x,*FREG.(HZ.)*,2x,A10)/	VIPRE	3004
E	116 X	,A2,3(34Y	A21)	, , , , , , , , , , , , , , , , , , , ,	VIPRE	3005
	NLI	NFS=11/4 91	INPRI=MOD(N,4)		VIPRE	3006
					VIPRE	3007
	DO	20 T=1, NL	INFS		VIPRE	3008
			12=11+NLI = \$13=1	2+NLINES	VIPRE	3009
10	21 PRI	NT 70, FRE	(I) , DR(I) , FREO (I1)	,DB(I1),FREG(I2),DB(I2),FREG(I3),	VIPRE	3010
	1001	I3)		,,	VIPRE	3011
	31 FOR	MAT (F 10.1.	F12.2,3(F24.1,F12.	2))	VIPRE	3012
					VIPRE	3013
	IF (	LINFPT.EM.	G) RETURN		VIPRE	3014
15					VIPRF	3015
	NLI	NES=N-LINE	PRT+1		VIPRE	3016
					VIPRE	3017
	סח	40 I=NLINE	S.N		VIPRE	3018
	4º PRI	MT ED FREC	(I),Dr(I)		VIPRE	3019
20	50 FOP	MAT (12EX, F	12.1,F12.2)		VIPRE	3020
					VIPRE	3021
	FET	URN			VIPRE	3022
	FND				VIPRE	3023
					VIPKE	3023
SYMPOLIC F	REELEN NOT	MAP (P=1)				
FCINTS						
TADIE						

FNT

AVBIVE	FE &	SN TYPE	२ च	LOCATION						
C	UE	REAL	AFRAY	F.P.	0	FRET	REAL	ARRAY	F.P.	
143	I	INTECE	P		0	IFUN			F.P.	
^	ISCHOL	INTEGE	P	F.P.	144	I1	INTEGER			
145	IS	INTEGE	P		146	13	INTEGER			
162	LTHP21	INTEGE	P		0	N	INTEGER		F.P.	
141	NTINES	INTECE	P							
FILE N	AMES	MODE								
	ULTOUT	CMT								
INLINE	FLNCTIC	NS TYPE	ARES							
	wCU	INIEGE	P 2 INTP	IN						
STATEM	ENT LADE	L C								
112	1 0	ENT		1	20			125	30	FMT
•	4 0			136	50 F	MT				
LCOFS	LEGEL	INULA	FROM-TO	LENGTH	PROPERTIE	S				
24	25	* T	9 13	SEB		EXT	REFS			
EE	4.5	* I	1 6 1 9	118			REFS			

STATISTICS
PROCRAM LENCTH 1718 121

claeun	TIVE TICKMK	74/74	nPT=1	FTN 4.5+414	08/16/77	13.11.28
1	Sun	OUTINE T	ICKMK (TICLEN, EMAX)	YSTEP, YAXIS, DRMIN)	VIPRF	3024
			EG(2) ,DECREL(2)		VIPRF VIPRF	3025
	Y 1 = 1	LOGIT (FM	AX) \$X2=Y1-2.5*TI	CLEN \$X1=X1-TICLEN	VIPRE	3027
5			X2=10.**X2	DON'TH COST DD-VSTED/E	VIPRF VIPRF	3028
				DBMIN \$DELDB=YSTEP/5. [CBEL(1)=DBMIN \$DECBEL(2)=DBMAX	VIPRE	3030
			RED, DECBEL, 2,0)		VIPRE	3631
					VIPRF VIPRF	3032 3033
10		18+CELFF	AX) RETURN		VIPRE	3034
				E9.0.) FRE9(1) = X2	VIPRF	3035
			SDECREL (2)=DB		VIPRF	3036
45			REO, DEDBEL ,2,0)		VIPRF VIPRF	3037
15	GO	ro 10			VIPRE	3039
	RET	IRN			VIPRE	3040
	END				VIPRF	3041

CARP ME. SEVERITY DETAILS CLAGNOSIS OF PROGLEM

17 I THERE IS NO PATH TO THIS STATEMENT.

SYMBOLIC REFERENCE MAP (R=1)

S LICKAR EKILA DCINIZ

					DCATION	RFLO	TYPT	SN	آدد	VARIARI
		REAL	DEMVX	65			PFAL		DE	66
	ARRAY	RFAL	DECREL	72	F.P.		REAL		DEMIN	
F.P.		RFAL	FMAX	0			REAL		DELDA	67
F.P.		REAL	TICLEN	0		ARRAY	REAL		FEED	70
		REAL	X 2	64		A KINA	REAL		X 1	63
F.P.		REAL	YSTEP	0	F.P.					
		11.75	101.0	0	F . F .		REAL		AVXID	C
						ARCC	TYPE		A1 <	EXTERNI
	4		CHEVE		Y	1 LIPRARY	REAL	C	110510	
						ARGS	TYPE	IONS	FUNCTI	INLINE
					N	2 INTRIN	SEVE		VAOD	
								offe	ENT LAD	STATEM
									10	31
									TICS	STATIS
					6.0	748		NGTH	RAM LEN	DEOC
					60	749			10 TICS	STATIS

	FPCYEN 74/	74 0° = 1	FTN 4.5+414	08/16/77	13.11.2
1	SUBBOUTIN	E FPOX94 (FZFRO, BETA, X, AL	PHA,F1,F2,Y,DY,XCYCLE,NYPLAC,	VIPRE	3042
	1 I P P I ME 1		, , , , , , , , , , , , , , , , , , , ,	VIPRE	3043
	TATA WINTE	H/1.2F/		VIPRE	3044
				VIPRE	3045
5	XX=ALCG10	(F2/F1) * XCYCLE SXX=(XX-W	1014)/2.0	VIPRE	3046
		(F1) + XX/ YCYCLE = XX=10.0*		VIPRF	3047
		SIX=3HX = SID=3HD = BIA=	3HA =	VIPRE	3048
		.ER ) SO TO 13		VIPRE	3049
	IF=3HF '= 9	9 IX=3HX = \$IP=3HP = \$IA=	7 H A . =	VIPRE	3050
10				VIPRE	3051
	1 CALL FLMES			VIPRE	3052
	LALL ELECT	AL (FZFRO,1,"ARUT","ARUT"	)	VIPRE	3053
		SS (" (H) 75", +131, "ABUT",		VIPRE	3054
	CALL FLMES	55(" 0*",+100,XX,Y-0.5*D	Y)	VIPRF	3055
1	CALL PLMTS	(YC*7, XX, Y-1.5*)Y)		VIPRE	3056
	CALL FLREA	AL (X, NYPLAG, "ARUT", "ARUT	")	VIPRE	3057
		TE ("LYCC PE EK")		VIPRE	3058
	CALL PLMES	SS(IE, 3, XX, Y-2.5*DY)		VIPRE	3059
	CALL FLREA	AL (BETA, 3, "ABUT", "ABUT")		VIFRE	3060
20	CALL FLMES	SS(IA, 3, XX, Y-3, 5* NY)		VIPRE	3061
	CALL FLPE	AL (ALPHA, 2, "AEUT", "ABUT"	)	VIPRE	3062
	CALL FASAL	LF ("L/CSTD")		VIPRE	3063
				VIPPF	3064
25	E LIIS V			VIDDE	3065
	- NL			VIPRE	

F.F. F.F. 0 RETA
0 FZERO
0 FZ
23J IE
0 IPRIME F.P. F.P. RFAL RFAL INTEGER INTEGER INTEGER REAL F.P. 0 NXPLAC 0 X 325 XY F.C. REAL SEIF I FIUSVEA
TAUE VSG4 EXTERNALS ALOGIC DACALE PLMESS RLRFAL STATEMENT LARFLE STATISTICS

26 ER 192

BEULEAR FLYELH

SURPOUTINE	E BETA 74/74 OPT=1	FTN 4.5+414	08/16/77	13.11.
1	SUPPOUTINE BETA(B, PEAK, SPLV	AL, X, ALPHA, FREO, FZ ERO, SGN, HILO)	VIPRE	3067
			VIPRF	3068
	FRETA(XX, PEAK, SPL VAL, X, ALPH	A, FREO, FZERO, SGN, HILO) =	VIPRF	3069
	1(1C.0**((SPLVAL-PEAK)/20.0)		VIPRF	3070
F.	2 (HILO+SGN*ATAN2 (2.0*XX*X**A		VIPRF	3071
	3(HILO+SGN*ATAN2(2.0*XX*(FRE	Q/F7ERO) ** ALPHA.	VIPRF	3072
	41.0-(FREQ/FZERO) * (FREQ/FZER	0)))	VIPRE	3073
			VIPRF	3074
	PPRV=1.0 \$05LP=0.05		VIPRF	3075
1	FPRV=FFFTA (PPRV.PEAK.SPL VAL	, X, ALPHA, FREQ, FZERO, SGN, HILC)	VIPRF	3076
	R= BPRV+DFLB		VIPRF	3077
	F=FBETA(E, PEAK, SPLVAL, X, ALP	HA, FREQ, FZERO, SGN, HILO)	VIPRF	3078
	IF (FPFV*F.LE.C.) GO TO 30		VIPRF	3679
	IF (ABS (FPRV) . GT . ABS (F)) GO	TO 10	VIPRF	3080
E	DELR=-CELF \$8=PPRV \$F=FPRV		VIPRF	3081
			VIPRE	3082
	10 PPRV=P \$ FPRV=F \$8=8+05L3		VIPRF	3083
	F=FBETA(E,PEAK,SPLVAL, X, ALP	HA, FREO, FZERO, SGN, HILO)	VIPRF	3084
	IF (FPRV*F.GT.0.) GO TO 13		VIPRF	3085
1			VIPRF	3086
	31 E= (RPFV*F-9*FPRV) / (F-FPRV)		VIPRF	3087
	RETURN		VIPRF	3088
	ENT		VIPRF	3089

SYMBOLIC PEFERENCE MAP (R=1)

FNTRY PCINTS
3 PETA

VARIAF	LFS SN	TYPE		RELO	MOITAC							
C	ALDHA	RTAL			F.F.		0	P	RFAL			F.P.
1 = 7	BERV	REAL					160	DELB	REAL			
162	F	DEAL					161	FPRV	REAL			
0	FRED	PEBL			F.P.		0	F7ER0	RFAL			F.P.
0	HILO	REAL			F. P.		0	PEAK	RFAL			F.F.
0	CEN	REAL			F.P.		0	SPLVAL	REAL			F.P.
C	×	SEAL			F.D.							
EXTERN	AL C	TYPE	ARES									
	ATAMA	PLVF	2	LIPRARY								
INLINE	FUNCTIONS	TYDE	ARCS									
	AFS	REAL	1	INTRIN				FPETA	REAL	9	SF	
STATEM	ENT LARFLE											
103	10				147	30						
STATIST	TICS											
	RAM LENGTH			1538	115							

SUPPOUTIN	E TERPL	IN 74/74	OPT=1	FTN 4.5+4	08/16/77	13.11.28
1		SUPPOUTING T	ERPLIN(X,DCLX, XINI	T, XARRAY, IXARAY, Y, YARRAY,	N) VIPRF	3090
					VIPRE	3091
		DIMENSION XA	RRAY(1), YARRAY(1)		VIPRF	3092
					VIPRF	3093
5		IF (IXARAY.E)	.1) GO TO 131		VIPRF	3094
					VIPRF	3095
		I=(X-XIN'IT)/	DELX SXI=I		VIPRF	3096
		Y=YARRAY (I+1	) + (X-XINIT-XI*DELX	* (YARFAY (I+2) -YARRAY (I+1	))/CELX VIPRF	3097
		RETURN			VIPRF	3098
ņ					VIPRF	3099
					VIPRF	3100
	10:	DO 11( I=1,N			VIPRF	3101
		J=I FIF (XARR	AY(I) . GE . X) GO TO :	1 20	VIPRF	3102
	117	CONTINUE			VIPRF	3103
r					VIPRF	3104
	127	IF (XAFRAY(J)	.NE.X) GO TO 130		VIPRF	3105
		Y=YARRAY(J)	SRFTURN		VIPRF	3106
					VIPRF	3107
	1 30	Y= YARRAY (J-1	) +		VIPRF	3108
2	1	(X-XARRAY(J-	1)) * (YAFRAY (J) -YAR	RAY (J-1))/(XARRAY(J)-XARR	AY (J-1)) VIPRF	3109
					VIPRF	3110
		RETURN			VIPRE	3111
		FNO			VIPRF	3112

SYMPOLIC PEFERENCE MAP (P=1)

4 LEMBETIK ENIBA DCIMIC

VARIAF	FLS	SM	TYPE	2 15	LOCATION							
C	DELX		RFAL		F.F.		61	I		INTEGER		
	IXARAY		INTECER		F.F.		63	J		INTEGER		
0	N.		INTESER		F.P.		0	X		REAL		F.P.
0	X DE 6 3 A		RFAL	AFRAY	F.C.		62	X	I	REAL		
C	YINIT		REAL		F.F.		0	Y		REAL		F.P.
C	YAPRAY		PEAL	VESVA	F.P.							
STATEM	FHT LAG	ELS										
71	100					9	113				40	120
47	130											
LCOPS	LAREL		INU-X	FRCM-TO	LINCTH		PROPERTIF	5				
32	115	*	I	12 14	6.0		INSTACK		EXITS			
STATIS	TICS											
	RAM LEN	GTH		104	3 28							

c[abuil_	INE QUAD 74/74 OPT=1	FTN 4.5+414	08/16/77	13.11.2
1	SUBROUTINE QUAD(X,DELX,X	INITL, Y, YVALS, N)	VIPRF	3113
	CIMENSION YVALS (1)		VIPRF	3114
			VIPRF	3115
	XI=(X-XIMITL) /DELX \$I=XI	\$XI=I	VIPRF	3116
E	X1=XINITL+XI*FFLX \$XX1=X	Y-X1	VIPRE	3117
			VIPRF	3118
	I=I+1 \$IF(XX1.NE.C.) GO	TO 10	VIPRE	3119
	Y=YVALS(I) PRETURN		VIPRF	3120
			VIPRF	3121
16	10 X3=X1+DELX \$K=I+1 \$IF(I.	NE.1) GO TO 20	VIPRE	3122
	X2=X3+DELX &J=K+1 &GO TO	30	VIPRF	3123
			VIPRF	3124
	20 X2=X1-PELX \$J=I-1		VIPRF	3125
			VIPRF	3126
15	30 XX2=X-X2 4XX3=X-X3		VIPRF	3127
	X1 X2 = X1 - X2	X2X3=X2-X3	VIPRF	3128
	Y=XX2*XX3*YVALS(I)/(X1X2	**1X7) -XX1 * XX3 * YVALS(J) / (X1X2 * X2X3) +	VIPRF	3129
	1XX1*XX2* YVILS (K) / (X1X7*X	2X3)	VIPRF	3130
	RETURN		VIPRF	3131
20	FNC		VIPRE	3132

SYMPOLIC REFERENCE MAP (R=1)

ENTRY POINTS

VARIA	FES.	SM	TADE	REL	OCATION				
C	DELX		REAL		F.D.	62	I	INTEGER	
70	J		INTEGER			66	K	INTEGER	
5	*1		INTEGER	*UNUSED	F.P.	0	X	RFAL	F.P.
61	XI		REAL			0	XINITL	REAL	F.P.
64	YX1		SEUL			71	XX5	REAL	
72	XXX		REAL			63	X 1	RFAL	
73	X1Y2		REAL			74	×1×3	RFIL	
F7	XS		REAL			75	X2X3	REIL	
EL	X Z		REAL			0	Y	REAL	F.P.
G	YVALS		REAL	ARRAY	F.P.				

STATEMENT LAGELS

31 20 36 30

STATISTICS 760 52

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